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I. L. Sharfman

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LAW AND ECONOMICS[1]

By I. L. Sharfman

In view of the fact that the war situation, though happily, in the end, rendering possible our assembly here, has prevented the integration of our discussions with those of other social science organizations, it seems appropriate that this address should not confine itself to strictly economic matters. More than ever the various social science disciplines are closely interrelated. They find a common focus in the sphere of public policy, especially as reflected in law and its development. My observations, epitomized as the relationship between law and economics, bear upon the processes of public control of economic activity.

I

As one scans the program of economic discussion being presented at these meetings, it is obvious that its dominant emphasis is upon matters of public policy.[2]

There are sessions, it is true, devoted specifically to the interpretation of recent economic history, the analysis of prevailing economic conditions, the development of basic economic theorizing. But even these discussions cannot escape the pervasive influence of the rôle of government in the economic life of the nation. The inter-war economy reflected in striking fashion both the relative public quiescence of the 1920's and the frantic governmental efforts at recovery and reform of the 1930's. Interpretation of this period poses the problem of how intimately collective action or inaction bore upon the great economic debacle with which we came to be faced, and upon the many frustrations, including the development of world conditions favorable to the outbreak of international strife on an unprecedented scale, which followed in its wake. Analysis of the changing structure of our

[1] Presidential address delivered at the Fifty-Eighth Annual Meeting of the American Economic Association, Cleveland, Ohio, January 25, 1946.

[2] See *Papers and Proceedings, Am. Econ. Rev.*, Vol. XXXVI, No. 2 (May, 1946).

contemporary economy, with reference to such matters as the location of industries, the distribution of manpower, the conditioning environment of financial practice, must find the roots of change, not only in the extraordinary circumstances of the war effort, but in significant preëxisting tendencies; and pre-war developments, only to a lesser degree than the pattern of the war economy, have drawn sustenance, for good or for ill, from the character and direction of government intervention. A like relevance is generally recognized in our theoretical thinking concerning the over-all organization and functioning of the economic order. Exploration of current advances in economic thought cannot, with any approach to realism, be restricted to narrow technical contributions in the traditional sphere of economic theory. There are basic limitations upon the adequacy of economic law, either as a reliable description of the complexities of prevailing economic processes or as a fruitful practical guide to social policy. In thought as in action a consideration of the reciprocal influence of freedom and control upon the operation of the economy is indispensable to promising inquiry. At this juncture it would obviously be folly to ignore the revealing experience of the great depression and the world war, with their extensive subordination of individual enterprise to collective action, or the impact of this experience, whether deemed favorable or unfavorable to public control, upon the character of post-war policies. Even fundamental thinking must reflect at least the value implications of important policy trends.

But the discussions at these meetings are more largely concerned with direct issues of public policy, in relation to specific problems of outstanding significance. Within the limits of a short few days, they can traverse only a relatively small number of representative fields; but in each instance the principal emphasis is upon governmental activity, from the standpoint of the service or disservice of past performance and of future threat or promise. This applies to the domestic as well as to the international problems being explored. Actual or potential measures of social coöperation embodied in legal requirements, in numerous sectors of the economy and through a great variety of expedients, provide much of the basic material for analysis and constitute the major sources of controversy.

Such matters as monetary and fiscal policy, whether dealt with as more or less self-contained segments of investigation or in relation to the maintenance of economic stability at a high level of production and employment, involve existing and proposed instruments and objectives that go far beyond mere reliance upon automatic exchange mechanisms or the traditional use of the spending and taxing powers of government. Similarly, the economist's long-established convictions

concerning the fruitfulness of freedom of international trade and investment have come to be conditioned, in light of the disruptive and depressing effects of recent trends to economic autarchy, by the efficacy of institutional arrangements for international economic coöperation. Not only must consideration be given to the purposes and probable results of such emerging world agencies as those for monetary stabilization and economic reconstruction and development, but the solution of numerous related problems is likewise dependent in large measure upon concert of action. Problems of commercial policy, capital movements, cartel arrangements, commodity agreements, technological restrictions, shipping adjustments, agricultural relationships—whether ostensibly attacked as matters primarily of national concern or frankly viewed in their international implications as well as in their domestic aspects—must necessarily be recognized as intricate problems of public policy. They embrace the distinctive economic circumstances of foreign areas as well as our own needs and aspirations; they are complicated by a diversity of national and international goals; they involve much more than the mere analysis of economic factors in terms of established economic principles.

And our concern with matters of policy is equally clear in most of the remaining subjects of discussion. The reëxamination of the outlook for effective competition, after more than a half-century of checkered governmental effort to this end, not only necessitates a consideration of the vitality of contemporary competitive rivalry and the feasibility, under prevailing circumstances of ownership and control, of relying predominantly upon the free operation of economic forces, but raises also crucial questions of principle and practice bearing upon the definition and maintenance of competitive conditions, and brings to issue the rather perplexing relationship between competitive policy and positive measures of collective enterprise and public control. These affirmative policies, furthermore, even when confined to such so-called naturally monopolistic industries as railroads and public utilities, require constant and informed appraisal, in the interest of evolving regulatory standards and expedients which in terms of actual performance are effectively adjusted to the changing circumstances and conditions of our economic development. The prevailing status of labor relations has likewise been molded in large measure by governmental activity. The strengthening of labor's position, as a result of statutory and administrative implementation of its right to collective bargaining through freely chosen representatives, has aroused deep concern in many quarters over the monopolistic potentialities of vast labor organizations; and the use of immense economic power by these organizations, through resort to the strike weapon as the culminating phase of abortive collective bargaining

procedures, has disclosed serious gaps in public policy and need for supplementary enactments to facilitate the adjustment of labor disputes. Finally, reliance upon public planning, for the purpose of stabilizing economic activity, eliminating mass unemployment, furthering the full use of productive resources, and increasing the flow of real income, demands at every turn incisive exploration of both existing and proposed governmental policies and practices.

In all these spheres, and in many others, there is manifest need for focusing informed economic opinion upon the policy problems involved; and in light of the great diversities of view that appear to prevail among economists, methods and procedures are being developed by the American Economic Association for coöperative definition of areas of agreement and disagreement, so that professional knowledge and insight and understanding may exert their appropriate influence in fashioning the character of the institutions and arrangements which condition or govern economic behavior.

II

Nor is this concern with policy problems either a new development or a mere reflection of the special interests of particular program-builders. The American Economic Association was organized in 1885, after a modest start had already been made, chiefly by the states, in the field of public control of economic activity. It was born immediately before government regulation, apart from tariff policy, first emerged on a national basis through the adoption of the act to Regulate Commerce in 1887 and the Sherman Anti-Trust act in 1890. In these circumstances, and in view of the generally recognized scope of modern political economy, it has been within the tradition of the Association from the beginning to be concerned with the nature and purposes and effects of government intervention in economic matters, not only with a view to achieving better understanding of the functioning of the economic order, but also in the hope at least, so frequently frustrated in the classic case of the tariff, that informed opinion might provide some measure of guidance in the evolution of public policy.

As long as governmental activity confined itself for the most part to imposing piecemeal restraints and special obligations upon particular aspects or segments of business enterprise, for the purpose of eliminating or mitigating specific abuses, policy questions were largely investigated by small groups of economists, acting within limited spheres, as mere incidents to the adequate cultivation of their respective specialties. This approach prevailed even in connection with the comprehensive affirmative controls over rates, service, finance, and related matters which were gradually developed in the public service

industries; and it was also measurably characteristic of the policies of credit control which resulted from the establishment of the Federal Reserve System, despite the more direct relationship of such control to the operation of the economy as a whole. But with the accumulation of a vast mass of controls in course of the years, however miscellaneous in character and lacking in coördination, most economists came to be intimately concerned with a considerable variety of expressions of public policy; and of more far-reaching importance, with the assumption during the great depression of positive governmental responsibilities, of diverse types, for increasing economic activity and maintaining economic stability, virtually all economic inquiry came to involve, and to be conditioned by, issues of public policy. This situation has been further sustained by government domination of economic activity during the war years; and on a more enduring basis, by the well-nigh universally accepted objective of striving for sharply increased production and employment and well-being, as compared with the best of pre-war achievements, for the years that lie ahead. These more recent phases of economic policy have ushered in important changes in the kind as well as in the extent of relevant public controls. When economists were chiefly preoccupied with cost-price factors, operating in freely competitive markets, as means of achieving automatic guidance of the utilization of resources and apportionment of income, economic analysis could concern itself with policy matters only in an incidental way; for in these circumstances public policy, except in special situations, was merely directed to maintaining the framework of private enterprise. But when, with depression and war, resort was had to many direct controls, of positive bearing upon the development of production and distribution, policy issues came to pervade the entire field of economic investigation; and the far-reaching problems involved are being carried forward into the period of post-war readjustment.

For the past decade and a half economists have struggled intensively with the inherent complexities and practical difficulties of economic policy. They have played a necessary and important rôle in government itself, and they are likely to continue to do so on a substantial scale. Their influence, in and out of government service, may be fruitfully exerted for both the relaxation and the extension of controls, depending upon the specific character of prevailing and projected governmental measures. It is of the very nature of public policy under democratic institutions that it is fashioned out of a wide diversity of views, even among experts; and in these circumstances large areas of disagreement, involving in major degree conflicts of judgment rather than differences as to fundamentals, are bound to persist. But most economists, repudiating with the vast majority of men and women the defeatist notion of the

futility of human effort, share the common determination, as economists as well as citizens, so to mold our economic arrangements, through appropriate combinations of individual initiative and collective control, as not only to safeguard the meritorious accomplishments of the past, but to eliminate current maladjustments of major significance and to move forward to new horizons. Our professional discussions of economic policy are the counterpart of the widespread concern with policy matters voiced through innumerable channels in the community at large, and they tend to reflect the dominant interests of economists in the contemporary scene.

III

While it is a commonplace that public policy in economic affairs is the result of the interaction of a great diversity of factors, discussions of policy problems are all too frequently confined to the narrow limits, more or less technically defined, of the particular issues immediately under consideration. Not only are related economic elements of offsetting character sometimes ignored, but non-economic considerations are often deemed to be altogether irrelevant. The age in which we live is one of specialization; and because of the enormous expansion of the field of knowledge, specialization naturally prevails in the intellectual sphere as well as in other aspects of our highly developed social arrangements. Immense good has issued of course from the labors of experts in restricted segments of the broad realm of science and thought. Without intensive activity by specialists in narrowly limited spheres of investigation, the sweep and rapidity of our progress to knowledge and understanding would be seriously impaired. In our own field, resort to specialized, detailed, and incisive analyses of economic conditions and of the interplay of economic forces is clearly indispensable. But controlling reliance upon sharply departmentalized results, both within and between special fields of inquiry, has its serious drawbacks, particularly in relation to the development of public policy. For the latter purpose the most pressing need, aside from the assembly of adequate data and their subjection to competent analysis, is for intelligent and balanced synthesis of the numerous and often conflicting factors involved. On the economic front, despite the constant pulling and hauling of special groups for special advantage, the problem of the effective functioning of the industrial system as a whole, particularly from the standpoint of the optimum utilization of material and human resources without serious interruption, has tended to constitute since the great depression the dominant concern of economic policy; and this concern, if it is to issue in fruitful social adjustments, calls for integrated knowledge and integrated thinking.

Furthermore, when the organization and operation of the social order are viewed in the large, there is considerable kinship between the underlying objectives of economists, sociologists, political scientists, and students of the law. All are devoted to acquiring knowledge and insight concerning human relationships as they develop within the framework of organized society, with a view, in part at least, to advancing the general welfare as reflected from time to time in the unfolding aspirations of the community. Each group deals with distinctive aspects of social process, and each relies upon special expedients and techniques; but the results of their explorations are part of a closely interrelated whole. When these results are translated into institutional arrangements through policy measures, those charged with responsibility for the adoption of such measures cannot escape resort to coördination, and they are as greatly in need of informed guidance in this aspect of their labors as in having made available to them adequate and soundly interpreted basic data in each distinctive sphere. This need of skilled and disinterested coördination is all the more urgent because scientific methods and scientific results can at best be only crudely approximated in the field of social relations. Means and ends and the values conditioning them are in process of constant flux; relevant data are always less than complete or current; human beings display vigorous opposition to controlled experimentation; the range of predictability is sharply restricted; the pertinent variables are so extensive as to result inevitably in wide differences with respect to diagnoses and cures; and consideration must be accorded to ultrarational or even irrational factors as well as to those assumed to be grounded in reason. It is in such circumstances that legal arrangements in the field of economic policy are evolved.

IV

Public control of economic policy is predominantly crystallized into law. Aside from the ultimate control assumed to be exercised by the consuming public in a free market economy, there are, of course, numerous informal public controls, consciously applied for the most part, unless condemned by law, through the great variety of voluntary associations into which our society is organized. The development of a spirit of private restraint and a sense of public responsibility on the part of major economic interests, whether acting independently or through such associations, might well serve to minimize the need of government intervention. But neither reliance upon automatic processes nor the beneficence of voluntary action has proved to be an adequate instrument for the elimination of specific economic abuses or the achievement of constructive economic purposes. In these circumstances

there has long been resort to governmental authority, in one sphere or another, to protect particular interests or advance general well-being. It is the complex of legal powers being exercised or sought which brings to issue the outstanding controversies of the day in the field of public policy. It is our prevailing system of law, the aggregate of governmental prohibitions and requirements imposing restrictions upon private enterprise and fashioning its character and direction, which raises such fundamental questions as the appropriate scope of the obligations of government to further economic welfare, the relation between freedom and authority in the achievement of fruitful economic results, the outlook for the preservation of democratic institutions in the milieu of extensive public control of economic activity.

This legal system not only embraces the large accumulation of juridical principles and practices sanctioned or evolved at common law in the piecemeal adjudication of disputes concerning the rights and duties of private litigants, but includes also, more significantly for our present purposes, the enormous mass of legislative enactments and administrative determinations—federal, state, and local—which, upon surviving the possibility of judicial censorship on constitutional grounds, play an important rôle in the governance of economic behavior. While this body of enactments and determinations, as interpreted by the courts, has modified common-law doctrines in numerous ways, its most far-reaching contribution lies in positive supplementation of the common law, through the establishment of standards and the enforcement of policies designed to safeguard and promote the common good. However adverse a reaction may be justified to the wisdom or propriety of particular measures, the basic objectives of the legal system as thus developed reflect a popular determination to improve economic conditions, within the general framework of private enterprise, and a faith in the efficacy of collective control.

Law as such evokes no opposition whatever in our midst, even from those who are most firmly convinced that the contemporary expansion of the legal system is calculated to destroy or subvert our economic and political institutions. Indeed, insistence upon the supremacy of law is voiced most uniformly and most vigorously by those who are generally inhospitable to restrictive change effected through collective action. But the law thus approved is primarily that which strengthens the very industrial setup which is in course of modification—the legal rules and practices designed to protect property rights, enforce contract obligations, provide monetary mechanisms, sustain corporate activity, define bankruptcy procedures, reward creative accomplishment, perpetuate special privileges. Even in these spheres, however, which have constituted the traditional legal foundations of economic conduct, a

process of continual development, in response to social pressures resulting from practical maladjustments of all sorts, is both necessary and unavoidable; and with the intensification of public consciousness as to desirable ends and appropriate means, more positive objectives are constantly emerging and being implemented—the powers and opportunities which inhere in our political democracy are being utilized not only to advance special interests, but to further the deliberate attainment of more general economic well-being.

The labors of economists would proceed on an unrealistic basis, and would tend to be sterile in many respects, if adequate heed were not given to the legal environment in which economic enterprise is organized and economic forces operate; but it is even more important that the controlling system of law should reflect adequately the economic environment in which its rules and standards and policies are applicable. If law is to serve as a living instrument for the guidance of human relationships in the economic sphere, it must necessarily embrace a process of reasonable adjustment to social change; and, in point of fact, the relative stability of our institutions is attributable in large measure to the actual recognition of this principle of growth in our legal system. Despite the existence at times of significant conflicts between law and economics, involving especially undue lags in the development of constitutional doctrine, even the large mass of common-law rules has been fashioned progressively, though slowly, to accord with the demands of our dynamic society; and the major measures of economic policy which find expression in legislation and administration have come to constitute an integral part of the prevailing body of law. By and large, at least as of the present, the growth of our legal system is not being artificially or unduly restricted by the individualistic traditions which surrounded the early development of modern industrialism.

V

Both prevailing and proposed economic policies must be judged on their merits, in light of all conditioning circumstances; and on this basis economists have much to contribute toward the development of sound and effective policy measures. The immediate sensitiveness of economic conduct to indirect and remote influences, as well as the long-run economic consequences of controls, must of necessity receive informed consideration; and reasoned emphasis upon the broader implications of economic policy, in their bearing upon our entire institutional setup, also possesses a large measure of persuasive pertinence. In other words, we must not permit ourselves to drift into an essentially collectivistic economy. But when opposition to policy measures is voiced in extreme terms—when virtually all significant

proposals are attacked as fundamentally subversive of our cherished heritage—the adoption of needed controls is sometimes retarded, and what is even more important, the controls actually incorporated into our legal system tend to be largely molded by their militant proponents, whose advocacy is often equally extreme in the sweeping constructive expectations which it holds forth. Since the precise character of controls and the procedural safeguards surrounding them are not infrequently more important than the mere fact of their establishment, this approach comes to be a self-defeating one on the part of the regulated interests, and the community at large tends to be deprived of the balancing influence of those most immediately concerned and most intimately acquainted with the complexities involved. It is one of the striking facts of our economic history that, except in grave emergencies, commercial and industrial interests have stubbornly opposed practically all restrictive or positive control measures of importance, usually on what they professed to be fundamental legal and economic grounds, however readily they may subsequently have adjusted themselves to the new environment created by these measures. Among the more comprehensive considerations that have thus been invoked in obstructing and impairing the development of economic policy are those reflected in relatively unrelieved stress upon the maintenance of individual freedom, in condemnation of government as a virtually unmixed evil, in repudiation of politics as a necessarily maleficent activity.

There is a substantial parallelism between undue emphasis upon national sovereignty in international relations and a similar overemphasis of individual freedom in domestic relations. Both are expressions of a basic isolationism in face of closely knit and interdependent conditions of social living. There can be no question that freedom from restraint, whether it be the external restraint of alien states or the internal restraint of domestic governmental authority, is among the most fundamental of our values and is largely responsible for our fruitful accomplishments. But untrammeled freedom of action has never prevailed in either sphere. It has always been recognized that both national and individual liberty, if allowed uninhibited sway, are themselves likely to generate serious restraints, and that deliberate restrictions may be necessary to achieve the largest measure of attainable freedom. National sovereignty has not precluded ready acceptance of the numerous self-imposed limitations contained in compacts or treaties negotiated between states, nor has the individualism of our system of private enterprise precluded the collective establishment of numerous controls. When achieved through democratic processes, in response to demonstrated general need, these measures of economic control tend to implement and enrich individual freedom, just as

mutually advantageous international agreements constitute concrete expressions of sovereignty rather than its denial.

We are now in the midst of a determined quest for durable peace among nations and for economic security at home, and in connection with this far-reaching effort the institutional implications of collective control have come to sharp focus. But there appears to be no justifiable basis for assuming that even these objectives are necessarily in conflict with the maintenance of national sovereignty or individual freedom. The goals are more positive and comprehensive than any previously sought on so broad a foundation of popular support or with like insistence, but they are being pursued for the most part within the established structure of political nationalism and economic individualism. Effective removal of the menace of war is essential to the constructive fruition of national purposes; adequate concern with continuing maintenance of a high level of production and employment is an indispensable condition of economic welfare. Collective effort toward these major ends, as generally envisaged, is but calculated to create a favoring environment for national and individual self-realization. Fortunately the obstacles to international coöperation springing from legalistic conceptions of sovereignty are rapidly dissolving. In the domestic field we are much more hesitant—for fear, basically, of undue encroachment upon individual freedom. There are, without doubt, many pitfalls and immense difficulties in interrelating soundly and fruitfully the great variety of elements, public and private, relevant to the achievement of economic stability at a prosperity level; and there is much room for controversy with respect to numerous technical questions clustering about wage adjustments, price policies, investment functions, monetary management, fiscal practices, and a host of other complex factors. But sweeping repudiation of public responsibility for economic stabilization is largely a make-believe procedure; and the ready identification of all public policies that may in some fashion be characterized as economic planning with the exercise of dictatorial power and the use of arbitrary methods—as inevitably involving authoritative allocation of resources and imposition of direct controls over all significant aspects of the economy—simply does not square with the character of prevailing non-emergency controls, or of the relatively modest proposals being sponsored, or likely to be sponsored, by any substantial and responsible segment of our polity. Such an approach leads to reliance, not upon documented economic dangers, but upon such emotion-laden and question-begging shibboleths as "regimentation" and "centralization," broadcast with little reference to the inescapable dependence of the individual upon social process, the essentially national scope of the established economic system, the reasonably reassuring actualities in

these respects of the general course of control experience. It is neither desirable nor feasible, in the complexities of modern industrial society, to restrict governmental functions to a closed category fashioned by the near-absolutes of a dead past.

Nor does greater validity attach to such strictures upon the development of public control as derive their primary impulse from want of confidence in government and politics. Governments can be and have been arbitrary, discriminatory, and tyrannical; and it is a sound instinct that seeks to restrict government intervention in economic affairs to the compelling requirements of public interest, centered upon the gradual but progressive improvement of the lot of the individual. But in a democratic society such collective requirements cannot be indefinitely ignored; and only government provides a sufficiently all-inclusive instrument to encompass and represent the entire community in the totality of its economic relations. In time of war we dedicate our lives and all our resources to a vital common end, and we rely upon government unstintingly to effectuate this end. Common ends of great significance also emerge in times of peace, and in the economic sphere control policies, molded by the specific exigencies of recurring need, constitute practical expressions of such collective purposes. Whether in peace or war, particular measures may be ill-adapted to the ends held in view, and may indeed prove positively harmful. Furthermore, the exercise of governmental authority may be impaired or vitiated by corrupt practices and inefficient methods. But such defects of government, occasionally resulting in situations sufficiently extreme to be termed scandalous, have their counterparts in the administration of private business enterprise; and in any event, the remedy lies in the improvement of government in all its various branches—a widely recognized need which becomes increasingly urgent as the scope of public control is expanded—rather than in the artificial restriction of governmental functions.

And like observations appear to be justified with respect to reliance upon the shortcomings of politics as a ground for resisting necessary controls. The unlovely aspects of politics are common knowledge and need not be detailed here. Improvement in political methods is as essential as improvement in government as a whole. But in considerable measure politics is government in action; and politics can no more be wished out of existence, or be regarded as an inherent obstacle to the adoption of needed control measures, than government itself. Moreover, the significant constructive services rendered by politics in the sphere of policy-making are generally overlooked. The often alarming activities of pressure groups tend in many instances to offset one another; and it is political rivalry, animated in some degree by divergent faiths and at

all events by distinctive strategies, that is largely responsible for keeping selfish interests in most cases within relatively reasonable bounds. There are, of course, fundamental issues of principle that call for uncompromising statesmanship, impervious to the temptations of political maneuvering. The maintenance of government as the servant of the people, through vigilant avoidance of policies calculated to transform the state into their master, constitutes the most outstanding of these issues and comprehends numerous matters of principle where political concessions are dangerous. Happily we have resisted the lure of totalitarianism even under the terrific pressures of the great economic breakdown and the unprecedented upheaval of world war; and with the complete military defeat of the fascist powers the climate of opinion is more inhospitable than ever to the enthronement of dictatorial authority. In most economic matters, however, there is ample room for accommodation of conflicting interests and conflicting viewpoints; and the pragmatic compromises of politics produce such accommodation. Politics thus serves as a cementing rather than divisive influence in our national life. Head-on collisions between powerful interests and extreme ideologies are thereby averted, and opportunity is afforded for resort to limited and tentative expedients, often instituted on an experimental basis, which are subject to progressive modification as practical circumstances may require. The trial-and-error methods by which the Interstate Commerce act and the interpretation and application of its provisions have been evolved over a period of almost six decades furnish a striking illustration of this pragmatic approach; and similar methods have characterized for the most part the development of control policies in all spheres of economic activity. Needed change may be somewhat retarded in this way, but it tends to assume the form of much more orderly and realistic adjustments than if pursued as a quest for uncompromising ends, to be effectuated in full-blown maturity by single impulse. In this fashion the very political activity which is so often feared and so generally condemned has contributed significantly, despite the accumulation of controls, to the preservation of the essential attributes of the system of private capitalism.

VI

But perhaps the most common alarm over the influence being exerted upon the system of private enterprise by the development of public control finds expression in the contention that we are relinquishing our liberties to an all-pervading "bureaucracy." This characterization of governmental policies as bureaucracy is obviously a mere use of epithet, designed to cast discredit upon existing and proposed control measures, rather than an objective description of regulatory procedures.

Indeed, one is seldom given any inkling as to what constitutes the essence of bureaucracy, or where the line may be drawn between legitimate and bureaucratic governmental activity. For the most part the charge of bureaucracy but epitomizes over-all recalcitrance to control, lumping in a single blast of condemnation the great variety of considerations, largely substantive in character, which usually impel attacks upon government intervention in the economic sphere. Much of the distrust is based, of course, upon justifiable complaint against inefficient administration resulting from poor choice of personnel and lack of discipline, against slowness of action arising from cumbersome and hierarchical assignments of responsibility, against self-perpetuating and self-aggrandizing activities of public appointees. As already noted, removal or mitigation of such governmental and political defects is, and should be, a matter of deep concern. But aside from these general strictures upon government and politics, and to the extent that regulatory processes rather than the policies to be enforced are at issue, it must be assumed that the critical emphasis upon bureaucracy springs from the fact that our prevailing governmental establishment operates predominantly in economic matters through boards, bureaus, and commissions. From this standpoint it is the administrative method of control, as reflected in the nature of the major regulatory agencies, which is assumed to threaten our liberties.

Administrative tribunals have come into being and have expanded with the years because they provide "working implements of government," to use a phrase of Chief Justice Stone, which are indispensable to the successful attainment of regulatory ends. Exclusive reliance upon the courts would but give effect to customary common-law rules, constituting a virtual abdication of positive policy making in face of urgent need of control in many directions; and even within these narrow limits such judicial activity would result in the mere provision of private redress for past infringements upon prevailing obligations, rather than in the affirmative establishment of such relationships as are deemed to be required in the public interest. In these circumstances resort to statutory enactments has been a necessary and natural expression of democratic objectives in the complexities of the modern world. But direct legislative regulation, enforceable in the courts, while entirely appropriate where concretely definable prohibitions are involved, is likewise beset with vitiating difficulties in most instances. Legislatures do not possess the necessary competence to deal in detail with the numerous and intricate economic matters over which they may exercise jurisdiction. Many practices subject to control—such as unfair methods of competition and unreasonable or unjustly discriminatory rates and charges—are not adequately definable, even as prohibitions, without

reference to the facts of individual situations. When remedial ends are being sought, as in most aspects of contemporary control, legislative policies must be adapted to a tremendous diversity of circumstances and conditions. And direct legislative controls, however soundly formulated in the first instance, would tend to issue in harmfully rigid adjustments. It is because of such factors that the administrative tribunal has come to be utilized as the dominant instrument of regulation. Basic policies and guiding standards are prescribed by the legislature; but the task of translating these policies and standards into specific regulatory requirements is entrusted to administrative commissions, fuctioning continuously and aided by technical staffs, which promulgate their orders, after notice and hearing, on the basis of factual records as developed in each proceeding, and whose determinations are subject to judicial review. While there are minor variations from these primary characteristics among the many permanent regulatory bodies now operative, and while the pressures of emergency situations have temporarily induced procedural short-cuts as well as extraordinary extensions of public authority, this type of agency constitutes the established norm for the control of economic conduct.

It is important to remember that this method of administrative regulation represents no new device fashioned during the recent period of intense control activity. State commissions with mandatory power over railroads were first established in the 1870's; and in the federal sphere the Interstate Commerce Commission, the most powerful of all our peacetime administrative agencies exercising direct economic control, dates back to 1887. The creation of this commission constituted a deliberate Congressional choice over the alternative method of legislative regulation, and the long intervening experience has but served to confirm the wisdom of the choice. While numerous controversies have developed in the course of the Commission's existence concerning the nature and scope of the substantive policies to be established for its guidance, there has been no disagreement as to the indispensability of the administrative method for effectuating these policies, and there has been no weakening of this conviction as the Commission's powers have actually been expanded in notable degree. By the time of the outbreak of the First World War, virtually all the states had constituted administrative agencies, modeled upon the Interstate Commerce Commission, for the regulation of public utilities, and the Federal Trade Commission had been established to regulate competitive practices and implement our antitrust policy in the general field of commerce and industry. By that time, furthermore, a full generation ago, the developing system of administrative law had been absorbed without serious difficulty into our over-all legal framework. This was accomplished by a

Supreme Court, under the leadership of Chief Justice White, which in the contemporary disposition to affix labels would generally be deemed to have been conservative. Not only were attacks upon the regulatory commissions on the ground of unconstitutional delegation of legislative authority successfully repelled, but by the adoption in self-denial of a narrow judicial review, the courts gave full effect to the large grants of administrative discretion vested in these agencies. It was recognized that the ever-present conflict between rule and discretion, arising from the need under varying circumstances of according consideration to the often divergent demands of certainty and of justice, is characteristic of judicial as well as administrative determinations; and in view of the essential regulatory purposes being served and the manifest legislative intent that dominant responsibility for effectuating them be vested in these specialized agencies, no inherent derogation from the supremacy of law was found to be involved in the functioning of the administrative tribunals. It was this established legal doctrine that determined the status and potentialities of most of the subsequently created regulatory commissions.

The attacks upon so-called "bureaucracy" as a process of control spring chiefly from fear of the exercise of arbitrary power. When adequate safeguards are provided against unjustifiable or capricious action, it is the control policies themselves rather than the methods of their execution that are really brought into question; and in our system of administrative regulation such safeguards are in fact provided in a good many ways by the legislatures, the agencies themselves, and the courts. The regulatory commissions are created by the legislatures, and their very existence, no less than the sufficiency of their resources, is constantly subject to the legislative will. The fields of their operation and the scope of their power, including applicable policies and standards, are expressly prescribed. Responsibility for proper performance of their regulatory functions runs directly to the legislatures, with provision for periodic public accountability to them. The entire structure of control in each sphere is thus subject to continual modification on the basis of experience. In the exercise of their authority, furthermore, the regulatory agencies are generally required to provide due notice to all interests involved and to afford them full and fair hearings. These agencies are frequently referred to as quasi-judicial tribunals, because, as an incident to the performance of their primary function of prescribing arrangements for the future, they necessarily pass upon the propriety of existing adjustments. Much more important is the fact that they usually follow quasi-judicial procedures. These procedures arouse dissatisfaction on the part of those who impatiently seek quick results through summary action, but they

provide necessary assurance that all relevant private rights and interests will be accorded due consideration in the fashioning of determinations deemed to further the public good. The validity of these administrative determinations, finally, is subject to review by the courts. While judicial review generally confines itself to mere questions of power, and does not seek to substitute the judgment of the courts for that of the regulatory bodies, it provides effective safeguards against unconstitutional assertions of power, both in the governing legislative policies and in the resulting administrative orders, against exercise of administrative authority not supported by valid interpretation of the pertinent statutory enactments, and against abuse of administrative discretion effected through any failure to adhere to due process, broadly conceived, as evolved in the established traditions of the law. The regulatory agencies are thus kept within the bounds of legitimate authority deliberately vested in them. Arbitrary power and arbitrary action are both alien to the prevailing peacetime system of administrative regulation.

Under such a system, however, it is a matter of crucial importance that the independence of the regulatory agencies be meticulously maintained. Only in this way can the characteristic advantages of the administrative method be realized. It is especially necessary that these tribunals be not dominated by political pressures. Political influences have their proper place in the development of guiding policies through legislative action; but in the execution of these policies as established by law, the responsible administrative bodies must be free to reach determinations based entirely upon their own informed judgment. Such freedom from external influence or control is as essential in this sphere as in case of the determinations of the courts. It conditions the attainment of just results in particular proceedings and the preservation of needed confidence in the regulatory process as a whole. The established setup is in point of fact one of independent commissions; and when political interference makes itself felt, as it does in a variety of ways from time to time, it at least tends to evoke adverse popular reactions, because of manifest departure from the generally accepted norm of administrative independence. The plausible proposals that are put forward recurrently for the absorption of the regulatory agencies by the regular departments of government constitute a much more serious threat. It would be difficult, in such a setup, to divorce specific administrative determinations, no less than general matters of guiding policy, from the political objectives of the party in power; and in these circumstances the orderly safeguards against arbitrary or capricious action which have been laboriously developed over the years would tend, as a practical matter, to be seriously impaired. A like danger

appears to lurk in proposals for instituting special-interest representation on the regulatory agencies themselves, as in case of the tri-partite board for handling labor disputes and wage stabilization during the war period. However helpful this form of organization may have proved to be in facilitating the disposition of industrial conflicts in the special emergency situations with which we were then faced, it did not contribute to the maintenance of orderly processes or the development of enduring principles. All interests involved in regulatory proceedings should, as a matter of course, be accorded full opportunity to present evidence and argument bearing upon every aspect of the problems at issue; but since the very fact of government intervention springs from the recognition of a general interest that transcends the special interests of the parties, the process of decision should be entrusted exclusively to public representatives. In other words, internal as well as external pressures may constitute an impediment to the maintenance of genuine administrative independence.

But in the last analysis the most far-reaching safeguards against possible excesses of public control, whether they be substantive or procedural in character, lie in the preservation of the democratic environment of governmental action. Important control policies usually draw their initial impetus from expressions of popular dissatisfaction with existing conditions. At least in general terms proposed measures tend to be discussed in political campaigns and to bear upon the fortunes of political parties and candidates. In due course they are investigated by legislative committees and debated in the law-making chambers. After control measures are adopted they are likely to be tested in the courts as to their constitutional validity and legal scope. They are then executed and enforced by the regulatory agencies, generally under quasi-judicial procedures, and the findings and conclusions of the investigations are public records. Individual determinations and directives are subject to judicial review, for abuse of administrative discretion, and the entire regulatory performance is subject to virtually unrestricted legislative inquiry. When patent improprieties or unacceptable results emerge, the law-making bodies have constantly recurring opportunity to reverse or modify or expand prevailing policies and practices; and the whole deliberative cycle may again be brought into play. After due allowance is made for the large measure of unreality that often characterizes public discussions of public issues, as well as for the obstacles to relinquishment of established control arrangements that derive from vested governmental interests, serious errors of economic policy cannot in the long run withstand the pressure of these democratic processes. As long as we exercise the necessary vigilance to preserve without impairment our political liberties, includ-

ing free and frequent elections, and our civil liberties of freedom of thought, of speech, and of the press, there is little likelihood that the course of government intervention will be permitted to subvert our essentially individualistic economic order.

The chief purpose of these observations has been to direct attention to some of the factors that obstruct the approach to policy problems. The ends sought are of vital significance, and the tasks actually to be performed are many and difficult. Despite the movement for public control, long in the making and far advanced in many directions—perhaps because of it—our economy remains the outstanding expression of private enterprise in the world of today. There is a deep-rooted faith in the system and a widespread determination that it be preserved. It is doubtful whether prophecies of doom are any better founded for the future than they have been in the past. There appears to be good promise that freedom and authority can be so harmonized as to promote economic well-being without sacrifice of essential values.

NATIONAL BUDGETS AND NATIONAL POLICY

By Jacob L. Mosak*

I. *The Need for a National Full-Employment and Full-Production Policy*

A number of economic models relating to the national budget recently developed on the basis of pre-war income and expenditure patterns have demonstrated that severe depression in the years immediately following the transition period is highly probable in the absence of a national policy to assure full employment. From these models the economists have concluded that in the post-war period (1) national policy must be directed toward changing the income and expenditure patterns so as to increase private expenditures for consumption and tangible investment, and (2) the federal government must assume the responsibility of adjusting its own outlays and revenues so as to maintain aggregate expenditures on goods and services by both government and the private economy at the level required for full-employment production.

The logic underlying these models will be indicated in a later section. The conclusions derived from the models may, however, be arrived at in a very simple manner. In 1944 and the first half of 1945, the American economy produced at an annual rate of about 200 billion dollars of finished goods and services for consumption, business investment and government use. Both the labor force and the output per manhour have been subject to conflicting influences during the war, some of which have tended to raise and others of which have tended to lower the gross national product. There is widespread agreement, however, that when these wartime influences are eliminated, the American economy, in the years immediately following the transition period, will be able to produce the same total volume of goods and services as it did at the peak of the war effort. Our capacity to produce in 1950, in other words, will be about 200 billion dollars gross national product in 1944 prices, and it will steadily increase thereafter as a result of population growth and increases in productivity.[1]

* The views expressed by Mr. Mosak are his own personal opinion and do not necessarily reflect in any way those of the Office of Price Administration.

The author is indebted to the following persons for their very careful reading of the manuscript and their many helpful suggestions: Henry S. Bloch, Benjamin Caplan, David W. Lusher, Richard A. Musgrave, Mary Smelker and Arthur Smithies.

[1] The problem of measuring peacetime output in terms of prices of the year 1944 when war expenditures were about half the total gross national product is an extremely difficult

While the capacity to produce will continue at peak levels, government, the largest customer for the national product, a customer which in wartime took one-half of the total, will reduce its orders by about three-fourths. Can markets be found for the 75 billion dollars of gross national product which the government will cease to buy? Can the private economy reasonably be expected to increase its outlays by three-fourths from its present all-time high level? Let us consider the probable changes in private investment and consumer expenditures.

1. Private investment in housing, plant and equipment, inventories and foreign lending was curtailed during the war. In the peak years, 1929 and 1941, private investment was just under 20 billion dollars whereas it amounted to only 4.5 billions per annum in the first half of 1945. Considerations of past rates of investment, as well as of the present productive capacity of our economy, indicate that the average rate of investment over a period of years in the foreseeable future will not very much exceed the peak reached in a single pre-war year.[2]

2. Expenditure on consumer goods and services, though higher than in pre-war years, was lower than it would have been at the high wartime levels of income because of shortages, price control and other factors. Consumer durable goods expenditure reached a peak of about 10 billion dollars in 1941, but fell to an annual rate of about 7 billions in the first half of 1945. It may be expected to rise from present levels by some 10 billion dollars per annum. Expenditure on food, clothing, gasoline and consumer services was also curtailed by 5 billions or more per annum at wartime levels of income as a result of shortages. The expenditure on goods has risen relative to disposable income in the first few months of the transition period, and the expenditure on services may also be expected to rise as the supply of services increases. This, however, cannot as yet be taken as evidence that in the post-transition years the total demand for consumer goods and services will be significantly higher in relation to disposable income than it was prior to the war.

3. Taxes at the peak of the war effort were about 25 billion dollars higher than they would need to be after the war if full employment

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one. The comparison is somewhat easier in terms of the prices of the factors of production—wage rates and the markup over wage rates—than it is in terms of the prices of the finished product.

For the author's projection of the post-war capacity to produce, see his "Forecasting Postwar Demand," *Econometrica*, Vol. 13, No. 1 (January, 1945). For summaries of the projections of various estimators in the field, see E. B. George, "Gross National Product Projections: The Background and Relation to Current Issues," *Dun's Rev.*, (March, 1945), pp. 9-14; and E. E. Hagen, "Postwar Output in the U. S. at Full Employment," *Rev. Econ. Stat.*, Vol. XXVII, No. 2 (May, 1945), pp. 45-59.

[2] This conclusion does not necessarily commit one to the "mature economy" thesis, since it carries no implications about the rate of investment in the distant future.

could be maintained with government expenditures of only 25 billions. A 25-billion-dollar reduction in taxes would certainly increase private expenditures substantially, but undoubtedly by less than 25 billions since a portion of the remitted taxes would serve to increase private savings.

When all these factors are taken into account, however, it is evident that they add up to considerably less than 75 billion dollars of additional private consumption and investment per annum over a period of years. Since any initial deficiency will have repercussions on other private expenditures, the gross national product will fall by considerably more than the initial deficiency. Unless, therefore, the federal government adjusts its revenues and outlays so as to raise the annual aggregate volume of expenditures, both government and private, to the level required for full-employment production, it is evident that mass unemployment and depression will follow. The conclusion is that the government must assume the responsibility and prepare a program to eliminate the deflationary threat of the post-war period.

II. *Controversy on Policy*

Dr. Albert G. Hart of the Committee on Economic Development has recently attacked the post-war models in the pages of this journal. His criticism relates to both the model-systems and the policy recommendations of the model-makers.[3] Indeed, although most of his comments are directed against the model-systems, I think it is a fair inference that they stem largely from his objections to the policy recommendations.

Before considering the objections to the policy recommendations, it is worth emphasizing that Hart's criticisms of the model-systems relate only to the question of the adequacy of demand for the potential post-war output. He evidently now agrees that 200 billion dollars is a con-

[3] "Model-Building and Fiscal Policy," *Am. Econ. Rev.*, Vol. XXXV, No. 4 (Sept. 1945), pp. 531-58. This article includes practically all of the criticisms that I have seen to date against the model-systems.

It should be clear that in accepting Hart's terms "model-makers" and "model-builders," to refer to the particular economists whose views he is criticizing, I am not dividing economists generally into model-builders and anti-model-builders. Model-systems are mathematical tools of analysis designed to derive consistent sets of conclusions from stated assumptions. They are useful tools for all economists, Keynesians and anti-Keynesians alike. Hart himself is a model-maker.

The model-makers singled out by Hart for criticism are as follows: National Planning Association, *National Budgets for Full Employment* (Washington, March, 1945); "Forecasting Postwar Demand" (papers by Morris Livingston, Arthur Smithies and Jacob Mosak, in *Econometrica*, January, 1945); the Appendix (C) by Nicholas Kaldor in Sir William Beveridge, *Full Employment in a Free Society* (New York, 1945); and R. A. Musgrave, "Alternative Budget Policies for Full Employment," *Am. Econ. Rev.*, Vol. XXXV, No. 3 (June, 1945), pp. 387-400.

servative estimate of the capacity gross national product for 1950. For he estimates the capacity in 1947 to be 186-195 billion dollars in 1944 prices.[4] Allowance for normal increases in both labor force and output per manhour would raise the *lower* end of the range to about 200 billion dollars in 1950. Hart's acceptance of this estimate of our productive capacity represents a great forward step in the clarification of the problem connected with the maintenance of post-war full employment.

A. *Inflation* vs. *Deflation*

The primary objection raised against the recommendations is that they take a one-sided view of the post-war prospects. Hart admits that deflation may be a threat during the next 10 years and probably during the next 5 years, but he maintains that it would be irresponsible to overlook the inflationary dangers in sight for the transition.

I do not believe that the model-builders can be fairly charged with irresponsibility on the inflation front. The American model-builders in question have all participated in helping to prepare and execute the Administration's program to keep inflation in check. They have all emphasized the dangers of price inflation during the earlier part of the transition period. They have, in fact, been accused of desiring to keep price and other anti-inflation controls needlessly during the reconversion period. It is one of the curiosities of our day that many of the economists who have been ridiculing the predictions of the post-war deflationary threat are the very ones who have been pressing for the immediate abolition of price controls.[5]

Even the model-builders who emphasized the threat of *deflation of income* resulting from the reduction in munitions employment, the elimination of overtime and the downgrading of workers insisted that there was simultaneously a threat of *price inflation* in the transition period as a result of the accumulated shortages of housing, consumer durables and other goods and services which would remain short even at the lower levels of income. Although the model-builders supported the movement for increasing wage rates to counteract the threat of income deflation, they exerted every effort to confine collective bargaining for wages within the framework of the price-stabilization program. Their thesis was the same as that advanced by President Truman, namely, that it was possible to increase wages substantially without corresponding price increases. This program required the Administration to assume

[4] M. G. de Chazeau, A. G. Hart, *et al.*, *Jobs and Markets*, Research Stud. for the Committee for Econ. Development (New York, McGraw-Hill, 1946), chap. 2.

[5] I am glad to say this is not true of Hart.

a calculated risk, but the risk was no greater than that proposed by Hart in his recent Study for the C.E.D. in which he wrote:

> While it lasts, price control must be streamlined and liberalized. The OPA must follow a course of "calculated risk" in suspending controls. Price ceilings must be adjusted if they seriously deter or distort production. Pricing standards should permit the average profit expectations of normal prosperity. The present "earnings" standard for price relief—the 1936-39 average return on net worth, before taxes—should be raised by about one-third. Increases should also be permitted whenever the price of a product fails to cover average total costs of production and not, as at present, average direct costs only. All price adjustments under these standards should be based on actual cost experience of the most recent quarter of "normal" operations, without distinction between "approved" and "unapproved" wage increases.[6]

If the model-builders did not refer to the danger of price inflation in the transition, it was simply because they *explicitly* confined their analysis to the years *following* the transition. For the post-transition period they are agreed that the major threat is depression and mass-unemployment rather than inflation.

B. *The Need for Flexible Policy*

In the light of the past fluctuations in economic activity, it is apparent that fiscal and indeed all national economic policy must be sufficiently flexible to counteract either booms or depressions. Hart presents his recommendation for a flexible fiscal policy in such a way as to imply that the model-builders are either opposed or at best indifferent to it. This is a mistake. The model-builders are certainly in favor of a flexible fiscal policy to counteract cyclical fluctuations. The issue is only whether there is also need for a national policy designed to prevent continued unemployment. A flexible fiscal policy, it has been aptly said, corresponds to putting in a properly balanced steering wheel, whereas a policy to prevent continued unemployment corresponds to improving the basic structure of the car. The model-builders want both, whereas their critics appear to be content only with the first.

C. *Fiscal* vs. *General Economic Policy*

Although the model-builders have emphasized the need for a comprehensive national policy to maintain stable full employment, the belief is widespread that they are interested only in public spending. The origin of this belief is not difficult to trace. The analysis of the model-builders is Keynesian in the broader sense, and Keynesian

[6] De Chazeau, Hart, *et al.*, "Summary of Key Recommendations" in *Jobs and Markets*, paragraph no. 2.

theory to the non-critical observer is synonymous with public spending.

It is true, of course, that Keynesian analysis provided the theoretical framework for the justification of the public spending program in the depressed 1930's. Nevertheless a moment's consideration should suffice to refute the charge against Keynesian theory. First, even in the 1930's, public spending was only one element, albeit to many the most dramatic element, of a much broader social and economic policy. Second, the relative concentration on public spending in the thirties was primarily due to (1) the fact that in an emergency which called for quick action, public spending could be increased more quickly than private; and (2) that the country was politically and socially unprepared to take many other measures which might have reduced the need for public spending.

The more our people and our government are educated to the nature of our economic problem, and the more they are prepared to take appropriate steps in raising the level of private expenditure, the less need will there be for public spending. This is in fact one of the major purposes of the analysis of the model-builders.

It is surprising that as trained an economic analyst as Hart should have been so misled by the widespread prejudice on this subject as to write: "The school of economists from which these model systems spring seems to feel that the only lesson economists need to convey to the public is that government spending can remedy depressions."[7]

That the comment just quoted is not based on any economic analysis is evident from the fact that in discussing the model-systems from a purely analytical standpoint, Hart saw clearly that the model-builders were not simply "public spenders." Thus he wrote: "These model-systems are set up on the hypothesis that the major components of the national product are determined by the scale and character of the government's fiscal operations—in a setting, of course, of relationships among the components expressing other economic forces. *This way of viewing the problem emphatically does not commit the model-builder to the assumption that government fiscal policy is the only motive power in the economy.* It merely brings a particular set of variables into the foreground for closer study."[8] (Italics mine.) It is regrettable that between his analytical and his policy discussion there should have occurred such a profound change in Hart.

D. *Deficit through Spending* vs. *Deficit through Tax Reductions*

Most trained economists—even anti-Keynesians—are now agreed that federal deficits are desirable during a depression. Hart goes further

[7] Hart, *Am. Econ. Rev.*, Vol. XXXV, No. 4, p. 552.

[8] Hart, *Am. Econ. Rev.*, Vol. XXXV, No. 4, p. 531, text and footnote.

even than most anti-Keynesian critics, because he accepts the entire Keynesian analysis concerning the effects of deficits on the national product. As will be shown later, he is more Keynesian than the Keynesians, since his major criticism against the model-builders boils down to nothing more than an objection that they estimate too small an income-multiplier for federal deficits. His argument should, therefore, provide little comfort to other anti-Keynesian critics.

The acceptance of the theoretical analysis of the effect of deficits does not mean that the dispute over the use of deficit policy to maintain full employment has been eliminated. The critics have simply shifted the dispute to the question whether the deficit should be achieved through increased government expenditures or through reduced taxation. In thus shifting their ground they have attributed to the model-builders an arbitrary distinction between the two types of deficits. They suggest that the model-builders believe only the former type of deficit stimulates employment, in contrast to themselves who believe that both types of deficits are expansionary,[9] and/or the latter type is preferable.[10] This is simply wrestling with strawmen. I know of no Keynesian, model-builder or otherwise, who believes that only federal deficits arising from abnormal public spending will increase output whereas federal deficits arising from tax reductions will not. Keynesians argued for a reduction in payroll and excise taxes as an anti-depression meaure before the war and for a strong tax program as an anti-inflation measure during the war.[11]

The choice between an additional reduction in taxation or an additional increase in government expenditures can obviously be made only in terms of their relative marginal social utilities. If there is any dispute between Keynesians and their critics on this question it is only on the relative degrees of effectiveness of a given increase in government expenditures as compared to an equal reduction in taxation. Hart states that a billion dollar reduction in taxation would lead to an initial increase in private expenditures "of roughly the same dollar amount."[12] Keynesians generally maintain that a significant part of the tax reduction would serve to increase savings rather than consumption and investment. Since the amount of government expenditures required to maintain full employment would be decreased only to the extent to which private expenditures increased, the reduction in required

[9] Hart, *Am. Econ. Rev.*, Vol. XXXV, No. 4, pp. 550-51.

[10] Hart, *Am. Econ. Rev.*, Vol. XXXV, No. 4, p. 552.

[11] In the estimates which Hart reproduces from my models, it is clearly shown that the larger the volume of tax reductions, the smaller is the amount of government expenditures and private capital formation required to maintain full employment.

[12] Hart, *Am. Econ. Rev.*, Vol. XXXV, No. 4, p. 551.

government expenditures would be less than the tax reduction. Consequently, with a lower volume of taxes, a larger deficit would be required to maintain full employment.[13]

Changes in different taxes will naturally have different effects. A reduction in personal income taxes at the very low income levels or in excises on necessities would lead to a very substantial increase in private consumption, whereas a tax reduction at the higher income levels or at the corporate level would have a much smaller effect. The amount of government expenditures required would, therefore, be smaller in the first case than in the second.[14]

III. *Criticism of the Model-Systems*

A. *Summary of the Model in* "Forecasting Postwar Demand"

Before considering the analytical criticisms it may be well to comment very briefly on the general nature of the model-system which I presented in "Forecasting Postwar Demand."[15]

The gross national product consists of expenditure on finished goods and services purchased by consumers, government and business for final use. It is also equal to the sum of the income shares paid to individuals, gross business savings (including depreciation reserves, etc.) and business taxes. The model sets up a system of relationships which it assumes will hold between the various components of the gross national product in the absence of a national policy for full employment. With this system of relationships we can estimate how much gross capital formation and government expenditures we shall need under any set of taxes in order to maintain any desired level of the gross national product. For a full-employment gross national product the amount is very great.

The model is designed to give only a first approximation to the workings of the economy. It is based in large part on sets of simple

[13] Musgrave discusses this point at length in his paper, "Alternative Budget Policies for Full Employment," *Am. Econ. Rev.*, Vol. XXXV, No. 3. The same point was treated in my paper, "Factors Affecting Adequacy of Demand for Potential Postwar Output," presented before the Conference on Research in Income and Wealth in November 1945, as well as by many others.

[14] Hart states that an extrapolation of my figures suggests that no abnormal federal spending would be necessary if *all* taxes, including state and local taxes, were abolished. I am skeptical as to the validity of Hart's extrapolation, but whether or not it is valid, it is irrelevant for policy purposes unless Hart seriously proposes to eliminate all state and local taxation. In any event the question whether the complete elimination of taxation would be sufficient with normal government expenditures to maintain full employment is a purely statistical one on which the model-builders themselves may differ. It is not at all a theoretical question on which Keynesians hold one view and Hart another.

[15] *Econometrica*, Vol. 13, No. 1. The approaches in the other model-systems criticized by Hart were broadly similar to mine. I single mine out because Hart used it to illustrate most of his points.

relationships derived from data for the period 1929-40. With few exceptions only straight-line equations were employed. In addition, many variables which the economist would naturally consider in a closer examination of the problem were omitted because they appeared to exert only minor influence. The two most important simplifications employed were:

1. Wages and profits may each be estimated from the money volume of the gross product of the private economy after deduction of all business taxes except federal corporate income taxes. The effects of probable changes in the relative importance of different industries as well as in the wage-price relationships in the absence of administrative controls appeared to be of secondary importance.[16]

2. The total dollar volume of consumer expenditures may be estimated from the total dollar volume of disposable income of individuals (after the payment of personal taxes). The available data indicate that this relationship will not be significantly affected by the growth of population and the accumulation of cash balances and by the probable changes in the price-wage structure in the absence of administrative controls.[17]

The model contains no equation for estimating the volume of gross capital formation. The reason for its omission was ignorance of the nature of the relationship and a belief that it is probably unstable. As a result of this omission the model can tell us only how much government expenditures and gross capital formation combined we need to maintain any desired level of the gross national product. It cannot tell us how much government expenditures alone may be required. This defect is not as serious as may appear at first, however, since the past data provide benchmarks for common-sense judgment on the probable range of capital formation, and since it may be possible to make short-range estimates with a fair degree of accuracy.

One question that must be answered by all model-makers is whether pre-war relationships are valid for purposes of post-war projections.

1. It would obviously be invalid to apply pre-war relationships to the few years of transition from war to peace since they will be subject to many distortions during that period. In particular, the relationship of consumer expenditures to disposable income has been upset during the war by shortages of goods and the whole mechanism of administrative controls. Backlogs of deferred demand, as well as technical bottlenecks during the reconversion period, will surely affect the

[16] The wage-price policy announced by the President after V-J Day may result in a significant modification of the pre-war relationships, but this is not certain.

[17] The apparent rise in the consumption function in the fourth quarter of 1945 is a transition-period phenomenon and does not provide any basis for generalization into the post-transition period.

demand function during the transition years. Many other factors of this type could be mentioned. To avoid this problem of transition period distortions, the analysis was explicitly confined to the years immediately following the transition.

2. It is also obvious that the system of relationships cannot be projected indefinitely into the future. All economic relationships change over time. The longer the period over which projections from past data are made, the less useful they become. The model, therefore, is intended to apply only to the early 1950's and not to the indefinite future.

3. The national product and its components in the period 1929-40 were much below the levels projected for the post-war period. This raises the question whether projections so far outside the experienced range have any validity. Fortunately, however, we have experienced during the war magnitudes in the same range as those of the post-war projections. As was stated in my paper, these wartime magnitudes were in keeping with the projections based on the 1929-40 relationships except for wartime distortions which reduced consumer expenditures to abnormally low levels. While this does not constitute a proof that the relationships will remain unchanged, it does suggest that it would be hazardous to assume that they will automatically change to such an extent as to eliminate the problem.

4. In the period 1929-40, there were severe fluctuations in the national product and its components, whereas the post-war projections are designed to cover a situation in which the levels are relatively stable. To test the effects of *changes* in the national product as distinguished from its *level*, experiments were made with multiple correlations in which the national products of both the current and the preceding year were taken as the independent variables. For the variables under consideration the projections obtained from these equations on the assumption that the national product is the same in both years were not very different from the projections based on the simple correlations. Since I was not concerned with the cyclical problem as such, I decided for the sake of simplicity to confine the projections to the simple correlations.

All of these qualifications were explicitly given in my "Forecasting Postwar Demand."

B. *Mistakes Allegedly Committed*

I turn now to specific complaints against the model systems. These complaints may be divided into two categories—errors of commission and errors of omission. The first group will be considered in this section and the second in the following one.[18]

[18] Hart implies that the model-builders were either unaware of the factors which he is discussing or at least were not fully alive to their significance. (See page 532 of his article.)

1. *Pessimism of the estimates.* The thesis of the model-systems is that aggregate demand for goods and services by individuals, business and government in the years immediately following the transition is likely to be inadequate to provide markets for all that we will be able to produce unless a national program is adopted to assure its adequacy. This might be attacked in one of two ways:

a. It might be argued in accordance with Say's law that demand can never be inadequate to buy all that can be produced because "demand is identical with supply." Since the publication of Keynes's *General Theory,* however, this thesis has been rejected by nearly all economists, including even non-Keynesians. It is also rejected by Hart.

b. Once it is admitted that aggregate demand *can* be inadequate, the argument against the thesis of the model-systems can run only in terms of statistical probabilities. Hart, therefore, argues that demand *is likely to be* adequate and indeed even excessive. Here Hart unwittingly falls into a trap of his own making. For he accepts the entire Keynesian analysis concerning the income-multiplier with respect to government expenditures and private capital formation and bases his entire argument on the assumption that the multiplier is large—very much larger than the estimates of the model-builders. In his desire to disprove the conclusions of the "Keynesian school" Hart thus not only adopts all of their arguments, but he also goes far beyond any Keynesian in insisting on the extreme effectiveness of government spending.

It would be difficult to believe that this is really the essence of Hart's criticism against what he terms "Keynesian insights" if he were not so explicit on this point.

The statistical model-systems in question yield a multiplier in the neighborhood of 2 with respect to the sum of government expenditures and capital formation. Hart raises a threefold objection against this estimate:

> (1) The estimate is based on the assumption that tax rates remain unchanged as government expenditures rise. Since tax revenues increase as the national product rises, the government deficit rises by much less than do government expenditures. Consequently, the multiplier with respect to government deficits is much larger than the multiplier with respect to government expenditures.
>
> This point is correct but it is entirely irrelevant for analytical purposes, since the effects of a given fiscal policy will obviously be the same whether the analysis is carried through in terms of the first

As will appear in the text, the model-builders were aware of all of the factors which he discusses. The issues between them and their critics are not due to "neglect of evidence" with which Hart charges them, but to the fact that they reached different conclusions from the available evidence.

multiplier or in terms of the second. The first multiplier, which is smaller, is applied to government expenditures; the second multiplier, which is larger, is applied to government deficits. The two products are obviously identical.

(2) The estimate does not allow for favorable repercussions of government deficits on private investment resulting from the increase in the national product. It is certainly a change from the usual diet to see a non-Keynesian criticizing the "Keynesian school" for failing to take into account the *favorable* effects of government deficits on private investment. As has already been indicated, the investment function was omitted because of ignorance of its nature and a belief that it was unstable. Consequently, the analysis runs only in terms of the effects of an increase in the sum of government expenditures and capital formation, not of an increase in government expenditures alone.

(3) If the multiplier were measured with respect to government deficits instead of expenditures and if allowance were made for the favorable repercussions on private investment, Hart says my model-system would yield an estimate of about 6.0 under 1940 income tax rates. He criticizes this estimate as being much too low and compares it with his own range of estimates as follows:[19]

1.	Moderately low	6.8
2.	Moderately high	17.
3.	Extremely high	43.

To my knowledge this is the first instance in which the "Keynesian school" has been criticized for underestimating rather than overestimating the effectiveness of government spending and government deficits.[20]

It is important to see how Hart arrived at estimates of such large

[19] The range between these estimates is so large as to render them practically useless for policy purposes. In the text Hart indicates a narrower range of from 5 to over 10. (See p. 549 of his article.) On the last page of his Appendix he indicates 6.8 to 14 as the likely range.

[20] From our estimates of the relatively small effects of government expenditures, Hart concludes, as cited above, that: "The school of economists from which these model-systems spring seems to feel that the only lesson economists need to convey to the public is that government spending can remedy depressions" (p. 552). What, then, shall one conclude from Hart's estimates of the extremely large effects of government deficits?

Hart evidently does not base his own policy recommendations on such large multipliers. For he writes that: "The likelihood that we may need to operate in the range from a 5-billion dollar surplus to a 5-billion dollar deficit seems very strong" (p. 551). With a multiplier of 17 this implies that, with a neutral fiscal policy, the economy would fluctuate within a range of over 40 per cent unemployment and over 40 per cent price inflation. With a multiplier of 43, which Hart admittedly calls an extremely high estimate, it implies that the economy might fluctuate within a range of zero employment and 100 per cent price inflation.

multipliers. For while Hart is the only one who has carried his argument to its logical conclusion by showing the multiplier which follows from his approach, many other non-Keynesians have used the same argument without realizing that they were thereby committing themselves to a super-Keynesian position.

It is obvious that the multiplier depends upon the rate at which an increment in the gross national product is respent on consumer goods and services. This in turn depends upon the rate at which an increment in the gross national product increases the disposable income of individuals after taxes and the rate at which an increment in disposable income is spent on consumer goods and services. The higher the product of these two factors, the larger will be the multiplier; the lower the product, the smaller will be the multiplier.

Hart claims that the model-builders underestimate both of these factors and consequently seriously underestimate the multiplier. The source of the alleged error is attributed to the fact that the model-builders overlooked the importance of rates of change in the national product on the variables under consideration. The period 1929-40 from which the relationships were derived was one in which income fluctuated sharply. Consequently, it is argued, the data show too large a variation in profits and too small a variation in wages corresponding to any variation in the level of the gross national product. Similarly, they show too large a variation in consumer savings and too small a variation in consumer expenditures corresponding to any variation in disposable income.

In the light of this complaint, it is worth repeating my statement in "Forecasting Postwar Demand" that experiments were made with multiple regressions using rates of change as a second independent variable. The projections obtained from these regressions on the assumption of a zero rate of change did not differ materially from those obtained by the use of the simple regression.[21]

[21] The reader may be interested to compare Hart's comments with the paragraph in my "Forecasting Postwar Demand" to which they apply.

Hart writes:

"The equations, tables and graphs which embody the model-systems here under discussion are formulated in terms of the levels at which the variables (government expenditures, revenues, consumption, investment, etc.) stand, without explicit reference either to *rates of change* or to *immediately previous levels*. . . .

"This logical limitation is not explicitly faced by the model-builders in question. In consequence, we tend to find a mixture of assumptions appropriate for static analysis with assumptions appropriate for dynamic analysis of impact effects. For example, Dr. Mosak uses a formula for corporate profits before taxes which shows them as varying by 23.6 per cent of any variation in gross private national product, derived by a regression of undeflated figures for 1929-1940. The base period, of course, reflects not experience with under-employment equilibrium but experience with sharp fluctuations—with a period in which low-income years were years previous to which activity had been much higher, and

It is true, of course, that even these multiple correlations using rates of change as an independent variable cannot tell us what the relationships might be if economic stability at full employment levels were to prevail indefinitely. In that case consumers and business might gradually make significant long-run adjustments in their income and expenditure patterns. It is reasonable to assume, for instance, that that part of consumer savings which is motivated by fear would be eliminated if job security were permanently assured. It is perhaps also reasonable to assume that profit margins would be lower and investment considerably higher than is indicated by the pre-war data if the risk of depression were eliminated. This is indeed the hope of all supporters of the Administration's full-employment bill. These changes appear probable, however, only some time after we have actually succeeded in maintaining permanent, stable full employment. They cannot be assumed in the absence of such a program.

One concrete objection that has been raised in this connection is that the long-run marginal propensity to consume may be 0.9 as against the short-run marginal propensity of about 0.8 derived by the model-builders for the inter-war years.

To this several points must be noted in reply.

(a) First, Kuznets's data, upon which the long-run estimate is based, relate to the *average* rather than the *marginal* propensity to consume. These may differ from each other very greatly, particularly at lower levels of income.[22] As Smithies has shown, Kuznets's data are

high-income years were years previous to which activity had been much lower. Had the 'active variables' been held constant until the 'passive variables' leveled out in an under-employment equilibrium, equilibrium ratios of profits to income would surely have varied much less than the regression suggests" (*Am. Econ. Rev.*, Vol. XXXV, No. 4, pp. 533-34; italics in the original).

My statement in "Forecasting Postwar Demand" reads as follows:

"Finally, it implies that the relationships which prevailed when the gross national product . . . was subject to serious fluctuations may be used as a basis for post-war projections with respect to fairly stable values of the gross national product.

"To test the effects of *changes* in the gross national product in the distribution of income by type of share, we experimented with multiple regressions using as independent variables the gross private product less 'indirect' taxes of both the current and the preceding years. The estimates of salaries and wages and of profits before taxes obtained from these regressions on the assumption that the product remained the same in both years did not differ materially from those obtained by the use of the simple regression. Inventory profits were excluded from the total throughout the analysis, thus eliminating one element that is greatly affected by changes in prices and production" (*Econometrica*, Vol. 13, No. 1, p. 32; italics in the original).

[22] If C = consumer expenditures, Y = disposable income and $c = f(Y)$, then the average propensity to consume is the ratio $\frac{C}{Y}$ whereas the marginal propensity is the derivative $\frac{dC}{dY}$. For a linear function we have:

consistent with a *marginal* propensity to consume of less than 0.8 and a slightly rising time-trend in consumer expenditures.[23]

(b) Second, even if it were correct that the long-run propensity is 0.9 rather than 0.8, it would still be improper to assume the higher figure for the period of the 1950's. Hart concedes that during the inter-war years the marginal propensity was 0.8. During the present war it has, of course, been lowered substantially. It involves too great a risk to assume that after the war it will suddenly jump to a much higher level which it may have had at the end of the 19th and the first decade of the 20th centuries, and that we shall, therefore, not be faced with depression.

(c) Finally, we must not overlook the possibility that the large rise in the projected per capita income at full employment may lower the marginal propensity to consume. Expenditure distributions by income-size suggest that the propensity to consume drops very sharply as we go up the income scale. In the past our per capita income was so low, even in peak years, that nearly all of our population had a relatively high propensity to consume. With a 200-billion-dollar gross national product, however, a very substantial proportion of our population would be in the higher income brackets where the propensity to consume has been relatively low.[24]

2. *Misleading Presentation.* The second major objection is that the

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Consumption function: $C = a + bY,$

Average propensity: $\frac{C}{Y} = \frac{a}{Y} + b,$

Marginal propensity: $\frac{dC}{dY} = b.$

Since in the regression equation "a" is positive, the average propensity is larger than the marginal. The lower is the volume of disposable income, the larger will be the difference between the average and the marginal propensity.

If the consumption function is non-linear, the average propensity will be larger than the marginal at all points for which the tangent has a positive intercept.

[23] This is the regression which Smithies used for his post-war projections, and his results are similar to mine.

Hart contends that a rising time-trend has no meaning in itself, and that the data must reflect a long-run adjustment to the rise in income. Given the increasing urbanization of the economy and the invention of new goods during the period under discussion, it is difficult to see why the assumption that consumer expenditures were subject to a rising time-trend in the past has no meaning. It is difficult to believe that if income per capita were to decline to the levels of 1900, consumption per capita would in the long run decline to the levels of 1900.

[24] Other critics have objected to the fact that the regression of consumer expenditures to disposable income was fitted to undeflated data, without allowance for changes in population and prices. As was pointed out in my paper: "A regression of per capita 'real' consumption on per capita 'real' disposable income yields results that are very similar to those obtained from the regression of aggregate money consumption on aggregate money disposable income" ("Forecasting Postwar Demand," *Econometrica*, Vol. 13, No. 1, p. 33,

basis on which the model-systems have been set up is likely to give a misleading impression as to the rôle of government expenditures in a full-employment policy.[25] This objection relates to the fact that my tables were set up to show in the final line the volume of government expenditures rather than the volume of government deficits (plus private gross capital formation) that is required to maintain varying levels of the gross national product. *In this method of setting up the tables Hart sees important fiscal policy implications. According to him it implies that, if a balanced budget would yield an under-employment equilibrium, my program would be to get up to full employment only by raising government expenditures and not by reducing tax rates.*[26]

A moment's consideration of the tables shows the basis for their arrangement. The tables give a breakdown of the gross national product by type of expenditure, consumer expenditure, gross private capital formation, and government expenditures. They show that under the specified assumptions as to tax rates, dividend policy, and transfer payments, consumer expenditures may be derived as a function of the gross national product. Consequently, we may obtain by subtraction the sum of government expenditures plus private capital formation required to sustain each level of the gross national product.

Clearly this form of arranging the tables does not imply anything at all about fiscal policy. The form is appropriate for and consistent with New Deal fiscal policy, C. E. D. fiscal policy, Brookings's fiscal policy, or any other fiscal policy.

In answer to Hart's criticism, I should simply like to pose two questions:

a. The tables showed the effects of nine alternative sets of tax rates on the volume of government expenditure required to maintain each level of the gross national product. Which of these nine alternative sets of tax rates is it implied will be kept unchanged?

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footnote 9). Smithies's regression does relate to the deflated series and his estimate of the marginal propensity to consume is even lower than mine.

[25] Hart, *Am. Econ. Rev.*, Vol. XXXV, No. 4, pp. 552-53.

[26] This criticism appears in the Appendix. In the text of the article, the objection raised is that I did not subtract the tax estimates given in my tables from the required amount of government expenditures to show that the required government deficit is considerably smaller. This criticism is apparently the result of too hasty reading, since the calculations which he calls for are presented on page 34 of my "Forecasting Postwar Demand."

Hart also objects that the model-systems are presented in such a way as to make it difficult for the reader who finds the results disconcerting to decide to what extent they are due to assumptions which he is unwilling to accept. Since my paper spells out the assumptions in detail, gives the basic data and presents the basic relationships both in tabular and in equation form, the interested reader can substitute any assumptions of his own for those of mine which he is unwilling to accept and see to what extent the results would be altered by the substitution.

b. If showing the amount of government expenditures under a given set of tax rates implies a fiscal policy of keeping tax rates unchanged, why would showing the amount of government expenditures minus tax revenues (*i.e.*, deficits) ***under the same set of tax rates*** imply a different tax policy?

Part of the answer to Hart's difficulty may lie in his confusion of two distinct multiplier concepts. He defines the multiplier as the ratio of the increment in the gross national product to the increment in the sum of the deficit plus private capital formation under a given set of tax *rates*. This is the sense in which the concept is used in his Appendix Tables I and II. In the last section of the Appendix, however, in which his own estimates of the multiplier are presented there is a sudden unexplained shift to an estimate involving constant tax *revenues* rather than constant tax rates. This second concept is also used in the estimate of the multiplier in the text of the article.[27] It is this confusion of the two distinct multiplier concepts which partially explains the mistaken criticism of the policy implication of my tables. Although he was discussing the multiplier as he defined it for a given set of tax *rates*, he apparently had in mind the multiplier as he estimated it for a given amount of tax revenue.[28]

C. *Factors Omitted*

1. *Cyclical factors*. It is objected that the model-systems omit cyclical factors, and that the "over-confident use of equilibrium models" is a "temptation to underrate the fluctuations problem." The recent model-systems may, of course, understate the cyclical problem, since they do not include any cyclical variation in the magnitudes of the parameters, such as the marginal propensity to consume. To the extent that this is true, however, they understate rather than overstate the problem of maintaining stable full employment.

It should be evident that the omission of cyclical factors is not inherent in the model-systems approach, nor in the use of the Keynesian method of analysis. Model-systems of business cycles have been developed along Keynesian lines, both theoretically and empirically; the works of Beveridge, Kaldor, Kalecki, Samuelson, Tinbergen and the

[27] Hart, *Am. Econ. Rev.*, Vol. XXXV, No. 4, p. 549.

[28] It is obvious that a given volume of government expenditures will have a much smaller effect on the national product if tax rates are maintained constant than if they are simultaneously cut to keep tax revenues unchanged. It should also be apparent that a given deficit will have a different effect on the national product, depending upon whether it is associated with constant tax rates or constant tax revenues. In the former case the deficit is the result of government expenditures increasing more than government revenues. In the latter case it is the result of an increase in government expenditures only. See my paper, "Factors Affecting Adequacy of Demand for Potential Postwar Output," Conference on Research in Income and Wealth, November, 1945.

Swedish school are sufficient evidence. The deliberate omission of the cycle from the recent model-systems is due to the fact that the authors were investigating only the structural relationships in the economy at given employment levels.

In addition to this general objection relating to the business cycle, both the consumption functions and the estimates of private gross capital formation are criticized for failure to include the effects of certain factors.

2. *Factors in the consumption function.* The major objection raised is that the consumption functions fail to allow for the effects of the accumulation of abnormal cash balances. Hart's own comments suggest, however, that he is somewhat doubtful concerning the significance of this factor. The period of the 1930's demonstrated that it is possible to increase cash balances substantially without any observable effect on consumer expenditures. A multiple regression of consumer expenditures on disposable income and cash balances yields a regression coefficient on cash balances that is not statistically significant. Abnormal cash balances may, of course, have a significant temporary effect on consumer expenditures in the transition years, but in the light of the experience in the 1930's, it is unwise to assume that the problem of inadequate demand will be solved by the larger cash balances of the 1950's.[29]

3. *The estimates of private gross capital formation.* As has already been indicated, the model-builders omitted any investment function from their analysis and simply indicated the order of magnitude which they thought likely.

To this approach Hart raises three objections:

a. *Assumptions of ignorance.* He concedes that the frank treatment of an area of ignorance by omitting the investment function has much to commend it, but he objects that "of course it still leaves the problem of what the undefined relations are actually like" (p. 539).

[29] For a fuller discussion of the author's position on the relationship of cash balances and income to consumer expenditure, see "Income, Money and Prices in Wartime," by Jacob L. Mosak and Walter S. Salant, *Am. Econ. Rev.*, Vol. XXXIV, No. 4 (Dec., 1944), pp. 828-39.

One supporter of the cash balance approach has suggested that the failure of consumer expenditures to rise with the increase in cash balances during the 1930's is attributable to the decline in interest rates which took place at that time. This argument is not valid, however. A decline in interest rates will, of course, significantly affect the relative holdings of cash and securities. There is no evidence, however, that it has a significantly depressing effect on consumption. Indeed classical economics has generally maintained that a decline in interest rates would raise rather than lower consumption, and it was not until fairly recently that even the *theoretical possibility* of a *positive* correlation between consumption and interest rates was adequately explained.

b. *Inadequate recognition of cumulative factors.* He thinks that the estimates fail to take into account the deficiencies of plant and equipment that have accumulated during the war.

c. *Underemphasis on intangibles.* He has the impression that the model-builders do not give adequate recognition to the effects of the general "economic climate" (*i.e.*, labor policy, monopoly policy, and general social climate) on investment.

The first objection is, of course, correct. Unfortunately "the problem of what the undefined relations are actually like" remains even after the improvements suggested by Hart. For he simply says that "the evidence on the effect of activity on investment is very unreliable for statistical reasons, and there is a wide range of possibilities." This statement is correct, but it does not add much to what the model-builders have already said.[30]

The second objection, it seems to me, should be reversed. The decumulation of the stock of plant and equipment which took place during the war was quite small and was confined to a few industries. There is general agreement that it will be more than made up during the transition years. Since the model-builders explicitly confined themselves to 1950 so as to eliminate the effects of wartime distortions, there was obviously no point in considering the effects of a deficiency in capital goods. On the contrary, if the model-builders are to be charged with ignoring the capital stock factor, the charge should rather be that they did not emphasize the damping effect of the accumulation of capital goods on the demand for new plant and equipment.[31] On this point they understated rather than overstated the problem of sustaining full employment over a reasonably long period of time.

The third objection is simply the result of a mistaken impression. Clearly factors of "economic climate" do have some effect on investment. This was indicated in my statement in "Forecasting Postwar

[30] Hart does suggest in the Appendix a range of 0.04 to 0.06 for the marginal propensity to invest, but so far as the reader can judge, the estimate is not derived from any statistical analysis of the investment function. If it is not, then Hart is guilty of the very charge of "careless use of assumptions of ignorance" which he places against the model-builders. I suspect that Hart ruled out a marginal propensity to invest of 0.08 only because, with the high marginal propensity to consume which he assumes, it would yield a fantastically high multiplier. In fact, in Table I of his Appendix he would have obtained a multiplier ("leverage factor") of infinity if he had taken a marginal propensity to invest of only 0.11 in his "Moderately High" column and of only 0.09 in his "Extremely High" column.

[31] Hart states that the omission of the capital stock factor was "presumably intended as a precaution against overstating the case for 'stagnation' which the model-builders are developing." It should be readily apparent that the proposition that additions to the stock of plant and equipment have damping effects on further additions does not commit one to a "stagnation" theory. Stagnationists and anti-stagnationists alike would accept the proposition.

Demand" that the government must "stimulate private capital formation by appropriate tax legislation, underwriting of loans to small business, support of industrial research and related measures." It was on the basis of such general considerations, as well as considerations of the level of output, that the reader was invited to judge the attainability of the required amount of investment. Unfortunately, Hart himself sheds no light on the effects of these factors on investment either in the past or in the future.

D. *Proposals for Improvement*

In view of the criticism of the static aspects of the "models" approach and the thesis that "the discussion has now reached a stage for a more careful survey . . . of ways to improve it," it was to have been expected that Hart would propose substitution of dynamic models such as those which have been developed by Tinbergen. The reader is, however, let down immediately with the statement that his "suggestions are aimed at patching up the static systems . . . rather than at developing a fully dynamic system."[32]

What does this "patching up" consist of? Three proposals are made on this score, but not one of them introduces *any* dynamic element in the system. Upon inspection, Hart's own system turns out to be just as much a static system as those which he criticizes so vigorously. Hart's proposals are:

1. That the economic variables be classified as active or passive according as they are or are not subject to change by positive policy action;
2. That the system of relations be expanded;
3. That we allow for uncertainty about the magnitudes of the parameters "by inserting a whole battery of alternative assumptions" as to their values.

Clearly the first point has nothing to do with any of the criticisms of the model-systems. To borrow some terms from biology, the model-systems dealt with the "physiology," not the "anatomy," of the economic system. The first proposal for "patching up" relates only to the anatomy, a subject with which the model-systems were not directly concerned.

Is the proposal a good one on its own grounds? I do not think so. There are very few variables which are not subject to change by positive policy action. Hart lists private consumption, private investment, income payments, disposable income, and individual savings as "passive variables." Clearly these variables are all subject to change by positive policy action. The Administration full-employment bill specifically calls

[32] Hart, *Am. Econ. Rev.*, Vol. XXXV, No. 4, p. 545.

upon the government to encourage private investment and consumption and to use governmental compensatory fiscal policy only as a last resort. Very soon after charging that the model-builders overlook the effects of labor policy, monopoly policy and other factors on investment, Hart himself classifies investment as a passive variable not subject to change by positive policy action. If all of the variables just cited were really passive, then a government full-employment policy would indeed have to be limited to compensatory fiscal policy.

The proposals for expansion of the system of relations refer primarily to the inclusion of cash balances in the consumption function and the inclusion of an investment function.[33] The proposals are certainly not new, and I daresay all the model-builders considered the factors in setting up their models. It would have been more fruitful if Hart had been able to present any data in this field which the model-builders might have used and did not. Merely to state that it would be desirable to have additional information on these points is to express a hope which all of the model-builders certainly share.

The third proposal is a good one, provided the range is confined to reasonably likely values. I doubt, however, whether the model-builders needed the suggestion quite as much as Hart seems to think. The Keynesian literature has long been filled with discussions of the effects of alternative magnitudes of such parameters as the propensity to consume upon the level of income. The National Planning Association pamphlet, which Hart cites, set up alternative models based on alternative assumptions as to the magnitude of the marginal propensity to consume. Likewise, Musgrave, the model-builder whose paper prompted Hart's own article, devoted his entire discussion to the problem of the effects of varying propensities to consume on the relationship of the government budget to the level of employment. An unpublished paper of my own, a copy of which Hart had read before publishing his own article, dealt with the same and related problems.[34]

Conclusion

The models relating to the national budget show that the American economy faces a threat of severe depression in the post-transition years

[33] It is also suggested that the disposable income factor in the consumption function be broken down into the three components of transfer payments, other income payments, and personal taxes. This is difficult, however, because in the past transfer payments and personal taxes were too small to yield significant estimates as to their separate effects. I did in fact experiment with a more important breakdown of income payments into employee and other income, but the results, as indicated in my paper, were not significantly different from those yielded by the simple correlations.

[34] A revised version of this paper was presented to the Conference on Research in Income and Wealth in November 1945, under the title "Factors Affecting Adequacy of Demand for Potential Postwar Output."

unless the federal government assumes responsibility to maintain stable full employment. This does not mean, as the critics seem to believe, that the model-builders want the government to confine its action to compensatory spending. It means instead that: (1) the government should do all it properly can do to change the pre-war income and expenditure patterns so as to increase private consumption and investment expenditures, and (2) it should adjust its own outlays and revenues so as to maintain total expenditures on goods and services at the level required for full employment. Far from suggesting that full employment could be readily achieved through public spending, the models indicate that even a program relying on both public spending and tax revisions might be inadequate. In other words, we shall need not only a sound fiscal policy but also a change in the private income and expenditure patterns if we are to maintain stable full employment.

By placing their emphasis on the need to prevent continued unemployment the model-builders do not mean that fiscal policy should be inflexible. Of course, our policy should be sufficiently flexible to curb excessive demand if it threatens. The models suggest, however, that the prospects of excessive demand over a period of years in the post-transition period are slight indeed, and that the major threat in the future is one of depression rather than of excess demand.

The post-war projections derived from the model-systems are subject to a number of important qualifications which must be constantly borne in mind. They are not valid for the transition years because of the wartime and transition-period distortions. They cannot be projected indefinitely into the future because economic relationships change over time. The relationships are based on data for pre-war years when income was lower than the projected post-war levels and was subject to violent fluctuations. These objections, however, are not as serious as they might appear. First, the experience of the war years indicates that the basic problem of inadequate private expenditures will not be smaller at the higher levels of income. Second, experiments made to test the effects of *rates of change* in income upon the relevant equations indicate that the projections from the simple model-systems are adequate approximations for periods of relatively stable income.

The models that have been developed thus far are, of course, intended to give only a first approximation to the workings of the economy. They employ for the most part simple linear equations. For reasons which have been explained, they omit the distribution of income by income-size and the cash balance factor from the consumption function. More important than these omissions perhaps is the fact that the model-systems contain no investment functions. They tell us, therefore, only how much government expenditures and capital formation combined

and not how much government expenditure alone we need to maintain any desired level of the gross national product. This is a serious defect which calls for much further analysis but it is not a fatal one, since the past data provide benchmarks for common-sense judgments on the probable level of capital formation.

The models have been criticized as unduly biased on the side of deflation. It is worth-while emphasizing, therefore, that it was on the basis of these very same models that the model-builders estimated the extraordinary size of the inflationary gap during the war. The model-systems represent a method of analysis, not a prognosis. They yield estimates of inflation or deflation according to economic circumstances.

It is a remarkable paradox that the models should be criticized by non-Keynesians primarily because they yield fairly low estimates of the income-multiplier with respect to government expenditure or government deficits. Hart is the only one who has made this argument explicit, but the criticisms of the other non-Keynesians would lead to the same conclusions. We thus have the peculiar phenomenon of non-Keynesians attacking the Keynesians for underestimating the effectiveness of government deficits.

The major objection that has been raised is that the pre-war data show (1) too large a variation in profits and too small a variation in wages corresponding to any variation in the gross national product, and (2) too large a variation in consumer savings and too small a variation in consumer expenditures corresponding to any variation in the disposable income of individuals. The critics thereby concede, however, that the magnitudes estimated by the model-builders are the ones which prevailed in the pre-war period and they rest their case upon the assumption that the magnitudes will automatically change in the right direction in the post-war period. They thus accept in full the logic of the argument of the model-builders, for instance, that the post-war distribution of income as between profits and wages will be a major factor in determining the magnitude of the problem of full employment. The issue, therefore, reduces itself to the question whether the desirable change in the distribution of income shares will, in fact, take place in the post-war period. The model-builders think a positive program of action will be necessary, whereas the critics think it will take place by itself.

The controversy reduces itself to this:

The model-builders say that in order to maintain full employment it will take a definite national policy (1) to secure a more favorable private income and expenditure pattern than existed prior to the war, and (2) to provide for government expenditures to fill whatever gap is left if private expenditures remain inadequate. The magnitude of

the latter would depend upon the degree of success achieved in the former. The critics agree to one part of each of these statements, namely: (1) that we need a more favorable private income and expenditure pattern, and (2) that government expenditures could close the gap should private expenditures remain inadequate. They believe, however, that no national full-employment policy is necessary because (1) the income-expenditure pattern will itself change in the desired manner, and (2) if a small gap should exist it could, owing to the large income-multiplier, easily be taken care of by small changes in the government budget.

The critics do not dispute that, if the income-expenditure pattern in the near future were to resemble that which prevailed prior to the war, a definite national full-employment policy would be clearly indicated. It seems unwise then to rule out the need for such a policy merely on the hope or possibility that the pattern will change sufficiently of its own accord.

PSYCHOLOGICAL ANALYSIS OF BUSINESS DECISIONS AND EXPECTATIONS

By GEORGE KATONA*

I. *Psychology and Economics*

In his presidential address at a recent meeting of a psychological association, Gardner Murphy pointed out that most of the problems facing psychologists today are interdisciplinary problems.[1] He discussed a variety of such problems falling at the same time into the realm of psychology and of medicine, biological sciences, sociology, or politics. He made no mention, however, of any question on the borderline between psychology and economics, which may serve as an indication that few professional psychologists have applied their findings to the analysis of economic behavior.

It is, therefore, not surprising that economists have found in the publications of psychologists little to attract their attention. Yet, the need for collaboration between the two disciplines has frequently been acknowledged. For example, in an essay on "Human Behavior and Economics" in 1914, Wesley C. Mitchell deplored the prevailing trend toward "non-intercourse with psychology" and added that "we may hope both to profit by and to share in the work of contemporary psychologists."[2] Four years later J. M. Clark wrote in an article on "Economics and Modern Psychology": "The economist may attempt to ignore psychology, but it is sheer impossibility for him to ignore human nature. . . . If the economist borrows his conception of man from the psychologist, his constructive work may have some chance of remaining purely economic in character. But if he does not, he will not thereby avoid psychology. Rather, he will force himself to make his own, and it will be bad psychology."[3]

Borrowing a useful conception of man from psychology became increasingly difficult in the 1920's when behaviorism and psychoanalysis were the most popular schools of psychology. Psychology could hardly be of assistance in explaining economic behavior at a time when, as

* The author, formerly associated with the Cowles Commission for Research in Economics at the University of Chicago, is now connected with the Bureau of Agricultural Economics in Washington. The views expressed are his personal opinions.

[1] G. Murphy, "Psychology and the Post-War World," *Psych. Rev.*, Vol. 49 (1942), p. 304.

[2] *Quart. Jour. Econ.*, Vol. 29 (1914), pp. 1 *ff*.

[3] *Jour. Pol. Econ.*, Vol. 26 (1918), p. 4.

Frank H. Knight rightly said, there was "in modern psychology . . . an increasing emphasis on unconscious motivation, and on the prejudice and caprice in the conscious motives of men."[4]

This might explain why J. M. Keynes, in describing "psychological characteristics of human nature," did not borrow from psychologists but proposed, without their aid, what he called "a fundamental psychological law" referring to the propensity to consume under the influence of changes in income. Keynes also ignored the work of psychologists in describing certain subjective factors that contribute to the formation of producers' expectations.[5]

When the interest of economists shifted from the equilibrium of an industry as a whole to that of the individual firm, psychology gained in importance, and a subjective concept, that of expectations, became one of the central concepts in economic theory.[6] Concerning the rôle of expectations in economics, we may subscribe to the statement of Joseph A. Schumpeter that we must "discontinue the practice of treating expectations as if they were ultimate data and treat them as what they are—variables which it is our task to explain"; and, "Unless we know why people expect what they expect, any argument is completely valueless which appeals to expectations as *causae efficientes*."[7]

How should expectations be explained? Schumpeter says "by linking them up with the business situations that give rise to them." Others, notably J. Tinbergen and James W. Angell, maintain that profit expectations are based largely or entirely on current and past profits.[8] It may be, however, that neither of these explanations is entirely adequate. That differences in price expectations cannot be derived exclusively from current and past price data is indicated by the great importance which Hicks and his followers attach to the elasticity of expectations.[9] That expectations may not be automatic responses to

[4] *The Ethics of Competition* (New York, 1935), p. 241.

[5] *The General Theory of Employment, Interest and Money* (New York, 1936).

[6] While the study of psychological factors gained considerably in importance with the emphasis on expectations (and on *ex ante* considerations), the following statement appears to be far too narrow: "Psychological factors come into consideration in economic theory in connection with anticipations and expectations" (Gottfried Haberler, *Prosperity and Depression*, 1941, 3rd ed., p. 143).

[7] *Business Cycles* (New York, 1939), Vol. 1, pp. 55 and 140.

[8] J. Tinbergen, *An Econometric Approach to Business Cycle Problems* (1937), and *A Method and its Application to Investment Activity* (League of Nations, 1939); J. W. Angell, *Investment and Business Cycles* (New York, 1941), p. 85: "The general level of anticipations . . . is equivalent to, and can be replaced by, some summary expression for the recent history of incomes."

[9] Expectations may be inelastic or may have a negative or a positive elasticity according to how they are affected by changes in current prices; *cf.* J. R. Hicks, *Value and Capital* (Oxford, 1939), pp. 205 and 249 *ff*.

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prevailing business situations is recognized by G. L. Shackle who writes that since "it is, after all, the decisions of individuals which determine what will happen," there is a "need to study the psychology of expectations as a process of the individual mind."[10]

So much of the need for coöperation between economics and psychology. Is such coöperation possible, and can it be fruitful? These questions can best be answered by analyzing specific issues of economics and finding out whether their understanding and solution can be advanced by applying to them psychological principles and methods.[11] Among the various economic issues that could be studied from the point of view of modern psychology, a few aspects of the dynamics of economic decisions are selected here for discussion. In this field we find that in describing some of their most important problems economists and psychologists use the same terms. The economists, in studying problems of pricing, speak of price flexibility or price rigidity; the psychologists, in studying problems of habit formation, speak of the flexibility or rigidity of conduct.

Our first task will be to characterize genuine business decisions in contradistinction to inflexible routine actions. This discussion will open the way to the study of business expectations. With respect to both tasks, first, psychological theories of habit, learning, and motivation will be outlined, from which conclusions or hypotheses applicable to business behavior will be derived. Then a few results of empirical studies will be presented which the author undertook with the purpose of testing those hypotheses. Factual examples, of course, cannot prove the hypotheses; it hardly needs to be said that the interrelation between theory and factual findings is much more complex. Nevertheless, empirical studies may show not only that certain hypotheses are plausible but also that, and in what way, the hypotheses may promote our understanding of economic developments. In this instance, presenting psychological hypotheses and economic illustrations should indicate of what use psychological considerations are for economics.

II. *Routine Behavior and Genuine Decisions*

There are many problems extensively studied in psychology which have no relevance for the analysis of business behavior. Knowledge of man's innate or inherited aptitudes and capacities, and of instinctive or automatic actions, cannot be utilized for the given purpose because,

[10] G. L. Shackle, "The Expectational Dynamics of the Individual," *Economica*, Vol. 10 (1943), p. 99.

[11] Success in the application of psychological principles to economic issues should benefit not only economics but also psychology, by strengthening the validity of those psychological findings that contribute to the understanding of economic behavior.

in studying behavior of a higher order, mechanistic or invariable connections between specific stimuli and specific responses are hardly ever found.[12] Human behavior is in most cases learned behavior, which explains that different responses may occur to the same stimuli or, more generally, that different behavior may occur in the same objective situation. Some economists, speaking of the automatic, self-regulatory nature of market economy seem to imply that pricing, selling, and buying behavior are determined solely by unalterable, impersonal forces; others say, in accordance with psychological findings, that "objective market conditions leave to the business executive a considerable range of subjective choice of policies."[13] The relevant question is whether the subjective choice is capricious or subject to analysis.

What are the laws of learned behavior? Associationists and behaviorists hold that individual past experience is the essential determinant of behavior: the response to a given situation is determined by the frequency of the individual's past responses to the same situation. In order to predict how a person will respond to a given stimulus, the most important clue, according to this school, is how he responded to similar stimuli before.[14]

Social psychologists have emphasized that factors other than personal past experience (for example, cultural-social norms) may contribute to the determination of behavior. Yet the basic contradiction to the theory that the response is a function of the number of past reinforced responses to the same stimulus came from the realization that past experience does not merely alter the response but may change the stimulus itself. The response is determined by what the stimulus means to the respondent; it changes when the meaning of the stimulus changes. Meanings are not just a matter of subjective interpretation. It is the setting or context of the stimulus, the greater whole of which it forms a part, which determines the meaning of the stimulus. The same

[12] One possible exception to this statement, action under extreme compulsion, may be neglected here. Our psychological analysis is applicable only to administered prices and not to authoritarian price-making. Administered prices are "to be found in situations in which the seller is a sufficiently important factor in the market and has sufficient control over productive resources to make it possible for him to adopt and carry out a price-and-production policy" (E. G. Nourse, *Price Making in a Democracy* [Washington, 1944], p. 10).

[13] D. H. Wallace, in *Public Policy*, edited by C. J. Friedrich and E. S. Mason (Cambridge, 1940), p. 110.

[14] The principle of the frequency of repetitions is usually qualified by assigning a greater rôle to more recent than to less recent responses and by the "law of effect": only rewarded responses may serve as reinforcements. The three leading modern representatives of this theory are E. L. Thorndike (*cf.*, for example, *Human Nature and the Social Order* [New York, 1940]), E. R. Guthrie (*The Psychology of Learning* [New York, 1935]), and C. L. Hull (*Principles of Behavior* [New York, 1943]).

stimulus may elicit different responses if it is perceived or understood as the part of the one or other whole.[15]

Suppose the price of a commodity or security goes up; what will be the reaction to the price increase? According to the psychological principle just described, the response will depend upon how the stimulus is perceived within its total setting. If the price increase is understood as a part of an enduring upward movement, it will elicit one reaction; if it is understood as an unjustified aberration from the normal, another reaction, and if it remains uncertain what the price increase means, possibly a third reaction. This example is given here to show that the decisive and still unsolved question, "What determines the reaction?" is reducible to the other question, "How do we acquire meaning?"

This is the central question of the psychology of learning. There are two ways of learning: through repetition and through understanding.[16] As an example of learning by repetition: I am told that the French word *fenêtre* means "window," and if I hear that often enough, I learn it. Meanings acquired by repetition must be repeated very often in order to form habits, and such habits are not easily adaptable to changed situations. Through learning by understanding, on the other hand, enduring and adaptable meanings can be acquired. Understanding requires the organization—or reorganization—of an experience, a process which is undertaken only if there is a sufficiently strong need or motive to do so. In a cross-road situation when we face several alternative possibilities, or in a new situation when old habitual ways of acting do not suffice, we try to solve the problem, gain insight into the situation, and understand it. Understanding results from the organization of experience within a larger context in such a way that previously unrelated items are viewed as integrated parts of the whole. The results of understanding are principles of knowledge or action, not piecemeal data or mechanical habits. Yet once acquired, the principles may govern action under various conditions without evoking the need for new reflection and new understanding.

From these findings of the psychology of learning, two conclusions can be derived that are applicable to the formation of business decisions.

[15] These statements are derived from experiments of *Gestalt* and field psychologists who demonstrated the rôle of organization (grouping, patterning) in perception; *cf.* K. Koffka, *Principles of Gestalt Psychology* (New York, 1935). That meaning is a matter of organization and not of familiarity was shown by M. Wertheimer (*cf.* "*Gestalt* Theory," reprinted in *Social Research,* Vol. 11 [1944], and G. Katona, *Organizing and Memorizing* [New York, 1940]). See also E. C. Tolman, *Purposive Behavior in Animals and Men* (New York, 1932), and H. Cantril, *The Psychology of Social Movements* (New York, 1941).

[16] G. Katona, *Organizing and Memorizing* (New York, 1940); W. A. Brownell, *Learning as Reorganization* (Durham, N.C., 1939), and *Learning the Multiplication Combinations* (Durham, N.C., 1943).

profits. Despite these facts, interviews conducted in 1943 with the

The first refers to habitual behavior and maintains that principles, well understood in their original context, tend to be carried over from one situation to another. This is the most important explanation of routine or conventional action, in contrast to purely repetitive action, never fully understood or understandable, such as tapping the typewriter here for "s" and there for "t."

The second refers to new decisions and actions and maintains that the emergence of a new situation and the realization that certain stimuli belong to a new context, different from a previous one, leads to the acquisition of new meanings through understanding.

Instead of proceeding with psychology and quoting experimental evidence for the two propositions or discussing differences between schools of psychology, we shall now turn to a few illustrations from the field of economics. We shall discuss specific instances of substantial changes in business policies, and of the absence of such changes, and shall try to show how the preceding psychological analysis applies to them.

We begin with two examples of rigidity in business policies.[17] Many years ago most restaurants, especially the larger ones, adopted the system of pricing meals according to the cost of the food that went into them. The restaurants calculated their total receipts and the total cost of the food bought by them and endeavored to keep the ratio between the two constant. From 1940 to 1943, when food prices rose rapidly and restaurant prices were not subject to price control, this system was maintained unchanged by a great many restaurants. In other words, they increased their prices or cut down on the quantity or quality of their meals every time the calculated ratio increased. What does that mean? If food prices increased, as they did in those years, keeping the ratio unchanged brought about a greater difference in dollars between receipts and food costs. Suppose a restaurant operated on a 40 per cent ratio. Then, in 1940, food that cost 40 cents went into a meal priced at $1.00; in 1943, when food prices had risen 50 per cent, the same food cost 60 cents and went into a meal priced at $1.50. Thus, in 1943, there was a difference of 90 cents as against 60 cents in 1940 to cover other expenses and allow for profits. Among the other expenses, however, some—for example, for linen and china and especially rents—went up comparatively little. Then, too, the volume of restaurant business generally increased sharply so that even unchanged dollar margins would have brought about increased aggregate operating

[17] The examples are taken from an interviewing study concerning business behavior during the war economy, sponsored by the Cowles Commission for Research in Economics and the National Bureau of Economic Research; *cf.* G. Katona, *Price Control and Business*, (Bloomington, 1945). For the sake of brevity, relatively recent developments are chosen as illustrations, it being assumed that the reader is familiar with their background.

shortages in civilian goods, which shook the traditional orientation of

profits. Despite these facts, interviews conducted in 1943 with the managers and owners of several restaurants revealed that they had not kept the unchanged ratios with the idea of increasing their profits. They said that they had kept the same ratios because they had learned in the past that that was the right way to run a restaurant The food-cost principle was maintained unchanged because of the tendency of carrying over from one situation to another certain principles that were well understood in their original context; there was no realization that the unchanged application of the old principle meant something different under the new conditions.[18]

We find in this example that price flexibility—the frequent price increases by the restaurants—was the result of extremely rigid principles. This is also the case in a second example in which, however, the inflexible principles brought about lower rather than higher profits.

Throughout 1942 and as late as January, 1943, most retailers of clothing, shoes, furniture and linen, maintained their policy of conducting seasonal clearance sales. At that time there was hardly any slow-moving merchandise, changes in style had become much less pronounced, and the retailers' main problem was getting goods rather than selling them. Nevertheless, several retailers went so far as to mark down the prices of the same proportion of their stock as usual. Others marked down less merchandise and sold it at a smaller discount than usual but declared that they would not think of changing the established principle of merchandising, that sales must be promoted by markdowns during certain months and stocks must be cleared by the end of the season. Careful analysis showed that in many cases complex "rational" explanations of this behavior were out of place. There was no weighing of the profits lost by marking down merchandise as against the chances taken by discontinuing the clearance sales or by alienating certain customers. The retailers simply continued to make use of their old-established policy without realizing that it did not fit under the changed conditions.

Yet, a short time later, in the spring and summer of 1943, most retailers discarded markdowns altogether. This action can serve as an example of the second principle of behavior described above: established policies were changed under the impact of new developments which created a subjectively new situation. It was the great buying wave for clothing, occasioned by the introduction of shoe rationing in February, 1943, and by announcements of forthcoming

[18] That the retailer "in all probability" utilizes a rough rule-of-thumb method when he adds a uniform markup to his buying prices is mentioned in *Cost Behavior and Price Policy*, by the Committee on Price Determination, National Bureau of Economic Research (New York, 1943), p. 285.

shortages in civilian goods, which shook the traditional orientation of most retailers and led them to change their policies.

Such a change in policy was further illustrated in the summer and fall of 1943, when many retailers decided to reduce their commitments and inventories. Up to that time they had bought all the merchandise they could by placing large orders with the manufacturers in the expectation of getting at least a part of the goods ordered. When Mussolini was forced to resign and Italy surrendered, they changed that policy: a new situation arose which was no longer governed by the expectation of a long war, growing scarcities, and the subjective assurance of being able to sell whatever they had. Thus a new decision was taken or an established policy reversed, when the greater context, the frame of reference of the business policy, underwent a change.

These few examples may suffice to illustrate the thesis that changes in business policies, and the absence of changes, must be understood from the point of view of the prevailing greater context, for in human conduct flexibility is a function of the subjective realization of new conditions, and rigidity a function of the lack of such realization.

III. *Psychology of Expectations*

This same principle helps toward an understanding of the rôle of expectations. In psychology, the study of expectations forms a part of the psychology of learning, since expectations are not innate or instinctive forms of behavior but rather the result of experience. Therefore, expectations are explained by the same two principles by which all learning is explained, that is, by repetition or understanding (or both). The theory of expectation based on repetition alone is: I expect those things to happen that happened before, and the frequency of my past experience (the number of reinforcements) determines the strength of my expectations. In other words, if I have experienced the sequence a-b-c-d several times and a-b occur again, then I shall expect c-d to follow, and the more frequently I have experienced the sequence, the more certain I shall be that c-d will follow. According to the same principle, the more frequently I hear or read a statement, the more I shall believe in it; this holds good of statements about the past as well as about the future.[19]

Psychologists who are not associationists admit that frequency is the determining factor of expectations under certain conditions; they maintain, however, that the strongest expectations originate in under-

[19] The main qualification usually added is that the prestige of those who make the statements may modify the rôle of frequency. Prestige again may be explained by repetition or by understanding, but the discussion of this question would lead us too far astray.

standing. We shall illustrate this by describing briefly laboratory and classroom experiments which the author made a few years ago.[20]

The subjects in some of the experiments were undergraduates who had had no previous instruction in physics. The students were given a brief explanation of the principle of inertia and of the parallelogram of forces. Then followed the test which contained such questions as:

> Standing at the open window of a speeding railroad car, you aim your rifle directly at a distant stationary target. Would you expect the bullet to hit the target or to pass ahead of or behind it?
>
> A fast and a slow airplane release their bombs when they are directly above their target; would you expect the bomb of the fast or the bomb of the slow airplane to fall nearer to the target?[21]

These specific questions had *not* been discussed in the instruction period, but those students who had understood the principles explained to them were able to answer correctly. They rightly concluded that the bullet must be deflected by the momentum of the train and the bombs by the momentum of the planes. Could it possibly happen, the students were asked, that their expectations would not be fulfilled? Under no circumstances, was the answer. It was shown in these and similar experiments that new and strong expectations were derived from systematic and well-understood knowledge. In parallel experiments in which the answers to the test questions were memorized, without an understanding of why the one or the other result must occur, much weaker and much less stable expectations were formed. Thus the strength of the expectations was not a function of the frequency of past connections.

In similar experiments, certain simple principles of wartime inflation were explained to students of science in the fall of 1941; how and why consumer purchasing power increases and civilian supply decreases during a total war, and how changes in supply and demand affect prices. Students who understood these principles expressed the strong expectation that prices would go up the following year. A comparable group of students read a number of speeches, attributed to persons of high prestige, in which the prediction of higher prices was made several times without explaining why the price increases would take place. In later tests it appeared that only in a few instances did such reading bring forth the expectation of price increases, and even those expectations could be easily shaken.

[20] G. Katona, "On Different Forms of Learning by Reading," *Jour. Educ. Psych.*, Vol. 33 (1942), pp. 335 *ff.*; also, *War Without Inflation, The Psychological Approach to Problems of War Economy* (New York, 1942), pp. 10 *ff.*

[21] The experiment was made in 1940 before newspapers and periodicals had familiarized the public with the trajectory of bombs.

We cannot go into the detail of these experiments. It is more important for our purpose to repeat again what understanding means in psychological terms. Understanding, in which strong expectations originate, is not identical with full and reliable knowledge. Neither is it a private feeling, such as the feeling of pain. It consists of the integration of various data within a context in such a way that the "gaps" are closed.[22] Understanding occurs only when a need for it arises, which is generally the case when a subjectively new situation emerges. For long periods expectations, like any other form of acquired behavior, may be routine, habitual, until something happens that creates a crossroad situation, a problem, and thus a need for reorganizing one's frame of reference.

What do these psychological findings mean for the analysis of business behavior? First, they indicate that new expectations bringing forth new economic decisions are not an everyday occurrence. Since the larger context in which new expectations originate does not change very frequently, it is questionable whether business behavior is correctly described as resulting from and consisting of a continuous revision of expectations. Business actions are frequently routine in the sense that expectations or changes in expectations play hardly any rôle in determining them.

Secondly, expectations can and even typically do change radically. The need for the reorganization of a greater context does not usually arise under the impact of slight changes in the environment, nor would such a reorganization be likely to bring about small adjustments in expectations (*e. g.*, it would hardly cause a business man to expect his sales to increase 6 rather than 5 per cent). Therefore, when business decisions are determined by the emergence of new expectations, radical changes in the decisions are probable.

Thirdly, it follows from the psychological findings that when expectations do change, they are likely to change at about the same time and in the same direction for many individual business men. The subjective feeling of a changed situation and the need for reorientation in one's thinking are usually dependent upon general economic, social, and political events which many business men experience at the same time. Uniformity or similarity of new decisions need not, therefore, reflect automatic or imitative responses, but may be the result of many individuals reacting to the same change in the setting.

IV. *Business and Consumer Expectations*

We thus conclude from psychological considerations that expectations

[22] *Cf.* G. Katona, "The Rôle of the Frame of Reference in War and Post-War Economy," *Am. Jour. Soc.*, Vol. 49 (1944), p. 343.

tend to change infrequently, radically, and simultaneously. Illustrations of these assumptions may be drawn from the study of business behavior under price control in which it was found (a) that business men had definite price, sales, or profit expectations only at certain times, and not at all times; (b) that when new expectations arose (*e. g.*, that price control would break down or that the "line would be held"), they usually represented radical changes in the orientation; and (c) that such reorientations frequently occurred among many business men at the same time so that they formed what is often called the "atmosphere" or "climate" in which business operated.[23]

To discuss first the second point: In 1941 many business men were puzzled by the change from a "buyers' market" to a "sellers' market" and sought an understanding of that change. Some of them grasped the relationship of war, increase in national income, and decrease in available civilian supplies to prices. The result of this new understanding was the expectation of higher prices.

A few words may be inserted here about demand curves or, to be precise, subjective sales curves that show what the entrepreneur believes will happen when prices or sales are altered.[24] It appears that the most important and most common effect of the emergence of new expectations is a shift of the subjective sales curve to the right or to the left, and not a change in the elasticity of the curve at the given price.[25] In 1941 some business men came to expect that they would be able to sell larger quantities at the same price or the same quantities at a higher price. The position of their subjective sales curve thus shifted to the right (and upward).

In the period 1942-44 it happened that expected price increases failed to materialize because of the success of price control. When a business man understood how and why price control could succeed and derived from his understanding the expectation that inflation would not take place during the war, his subjective sales curve, which previously had shifted to the right, shifted back to the left.

[23] *Cf.* G. Katona, *Price Control and Business*, chaps. XVI and XVII.

[24] R. Triffin states that the only relevant sales curve is the subjective or imaginal curve expressing the expectations of the producer (*Monopolistic Competition and General Equilibrium Theory* [Cambridge, 1940], p. 62). Since business men rarely experiment with different prices or different quantities of output under the same conditions, usually only one point of a demand schedule is actual; some other points may be subjective and thereby of considerable influence; the other points are hypothetical constructions of the theorist. For the sake of simplicity, we shall speak of a subjective sales *curve* without assuming that all points of the curve are subjectively given.

[25] In *Cost Behavior and Price Policy* (New York, National Bureau of Economic Research, 1943), the authors state, without further explanation: "It seems probable that anticipated shifts in the demand curve, to which the firm must adjust its decisions, have more relevance for price policy than does its shape" (p. 269).

In articles on the war economy, we frequently read the thesis that price control tends to increase demand because the price set by the government is lower than that which would prevail without any control, and the lower the price the greater the quantity demanded. Such a proposition is based on sales curves which reflect current prices only. If expected prices are taken into account, it is conceivable that price control may lower demand: without control the quantity demanded may be larger at higher prices than it would be with control at lower prices. This may happen because the absence of control is associated with an expectation of price increases leading to a shift of the curve to the right (and therefore to stocking up and hoarding), while the presence of control is associated with an expectation of stable prices leading to no change in the curve or, for some merchants, to a shift of the curve to the left (and therefore to restrained buying).

Yet such radical changes in the expectations which decisively influence business decisions occur only at certain periods that are marked by spectacular events. This was the case, for example, in the summer of 1943 when the Hold-the-Line Order and the establishment of dollar-and-cent retail ceilings for food products destroyed the expectation prevailing in the spring of that year that price control would break down. In field studies it was found that, in the spring of 1943 and again in the early fall of that year, most business men gave definite and uniform answers to the question as to the probable future course of the prices of their most important products. In the first period they said that prices would "undoubtedly" go up, in the second that they would stay stable. It was also found that these expectations influenced their actions, especially their endeavors to accumulate or not to accumulate inventories.

During many other periods, however—for example, toward the beginning of 1944—the replies to the question as to the future course of prices were predominantly of the "depend-on" type. Business men enumerated various possible developments that might cause prices to go up and others that might result in stable prices; even among merchants who considered the one or the other trend the more probable, only few based their business policies on their expectations. Similarly with sales and profit expectations. There were periods when definite expectations prevailed; for example, in the spring of 1942 most business men expected rising profits and in the spring of 1943—when rationing and forthcoming shortages were the main topics of discussion—lower sales and profits. Other periods, however, were characterized by routine behavior not guided by definite expectations.

"Uncertainty" appears to have (at least) two meanings. It may stand for the absence of definite expectations, or it may imply "lack

of confidence," that is, the presence of concern with future contingencies, of fear, and of definite adverse expectations.[26] The two meanings must be kept apart. The former meaning of the concept is the one toward which the study of expectations must first be directed. Only after the presence or absence of definite expectations is determined can the question of the measurement of expectations be raised.

Quantitative studies of expectations can be undertaken by means of field studies (interviewing). Without discussing here the complex problems of methodology, it should be mentioned that quantification of replies to interviews, and formulation of questions so as to result in frequency distributions, is easier than the qualitative analysis of the replies. Because hasty quantification presents a great temptation, some of our arguments may be summarized in form of a warning to research workers: if, without studying the kinds of expectations and the origin of expectations, we ask such questions as, "What do you think will be the price of wheat next year?" or "How large will the sales of your firm be next year?" we may induce the respondents to give definite answers (that can be presented in a table or fitted into a curve) which *may* give an entirely false picture. But at certain times and concerning certain issues we may find that definite expectations prevail and are susceptible of quantitative treatment. How, in this way, economic projections may be enriched cannot be discussed in this paper.

Only a few types of business expectations have been considered up to now. There are many other types the analysis of which must be postponed to a later occasion. Yet the relevance of the psychological considerations presented in this paper may be shown here by pointing toward a few unsolved problems.

What was said about the subjectivity of data referring to changes in demand applies also to the supply side. Even current costs are to a great extent subjective, being the result of decisions concerning the allocation of depreciation, overhead, sales costs, and so forth; the subjectivity of the evaluation of possible future changes in costs is still more pronounced. Changes in wage rates, or in interest rates, may be relevant considerations for business policy at certain times and with certain businesses, yet the assumption is questionable that definite expectations prevail in these respects at all times.

Still more complex is the problem of investment decisions because investment opportunities are not given but are perceived or not per-

[26] Uncertainty may also mean high dispersion of given expectations (*cf.* A. G. Hart, *Anticipations, Uncertainty, and Dynamic Planning* [Chicago, 1940]). Dispersion of expectations is rightly distinguished by J. Marschak from the probability assigned to an expectation or from the reliability of the estimate that led to an expectation ("Lack of Confidence," *Social Research,* Vol. VIII [1941], pp. 50 *ff.*).

ceived according to the subjective evaluation of past and current data and the presence or absence of certain expectations. No doubt, the decision to start a new business, to build a new factory, or to install new machinery, may result from the emergence of definite expectations. For example, new technological developments that alter cost calculations substantially may lead to a reorientation of business thinking. In other instances, however, the carry-over of old principles might take the place of the arousal of new expectations, and the investment, say, of funds set aside for depreciation may be made in a routine manner. Such investment habits may be broken if new expectations are aroused, which may then lead to genuine decisions *not* to invest.

Of importance is the analysis of expectations referring to actions of others—of competitors, suppliers, customers, or the government. A business man may abstain from raising his prices despite growing demand or higher costs because he expects that his competitors would not follow suit; or he may make an investment because he expects that others would act similarly. In such instances again genuine decisions based on the emergence of new expectations are one but not the only possibility. Expectations as to what competitors or the government would do may also be routine, consisting of carrying over principles that were understood to be appropriate under previous different circumstances. Empirical studies of these problems have hardly ever been attempted.[27]

Somewhat more attention was paid in recent years to the study of consumer expectations. In this field the conclusions drawn from business behavior were found to be applicable. Expectation of shortages and of price increases caused runs on retail stores and hoarding waves, but—fortunately—those expectations prevailed only at certain times during the war, for example, in the spring of 1942 and in February, 1943. Consumer surveys indicate that in most other periods between 1942 and 1945 the majority of consumers had confidence in price control. Some people felt sure of price stability, and others failed to share the opinion that during a war prices inevitably go up. There can be no doubt that the absence of the expectation of price increases reduced the rate of spending and increased the rate of saving during the war.

To believe that consumer expenditures are at all times influenced by definite expectations is not realistic. For example, in the summer of 1945, after the end of the war against Germany but before the end of the war against Japan, it was found that some consumers made genuine decisions on the basis of definite expectations. Some expected that,

[27] See, however, R. L. Hall and C. J. Hitch, "Price Theory and Business Behavior," *Oxford Economic Papers*, No. 2 (1939).

with the end of the war in Europe, qualities of consumer goods would improve soon and decided to postpone certain purchases. Others expected, and feared, that their income would soon decline or that they would become unemployed and decided to step up their rate of saving. Others again thought that, with the end of hostilities in Europe, the need for saving had declined and began to spend more freely. Clearly these decisions resulted from a reorientation of the people's frame of reference based on a certain kind of apperception of new events (V-E Day). Yet in this case the meaning attributed to the new events was not uniform, and for many people there were no new events at all: they did not consider V-E Day a dividing point between the past and the future or a starting point for a new period. They continued their routine behavior.

These brief references to consumer expectations point to a number of unsolved problems. Are the following hypotheses justified? Expectation of good times (of secure employment, rising income) tends to increase the propensity to consume; expectation of bad times tends to increase the propensity to save; expectation of price increases tends to increase the propensity to consume; expectation of price declines (or quality improvements) tends to increase the propensity to save. Only the proposition concerning the effect of expected price increases appears to be proved, but even in this respect the dynamic relationship implied requires further study.[28]

If it is true (a) that the volume of consumption and saving does not follow income in a mechanistic way but depends upon the prevailing expectations, and (b) that one's past experience is not the only factor shaping expectations but expectations can be influenced, then it follows that the propensity to spend and save can be influenced. This can be done, without destroying the people's free choice, by making consumers and business men understand why certain kinds of public and private policies lead to certain results. [29] We must, however, not overlook the difficulties involved in stimulating strong and enduring expectations that would influence people's actions. What Boulding calls the "law of self-justified expectations," namely, that "what enough

[28] In recent literature some of these hypotheses are assumed to be correct. K. E. Boulding writes: 'The expectation of rising prices leads to larger expenditures" (*The Economics of Peace* [New York, 1945], p. 137). S. H. Slichter states: "Optimistic expectations (belief that one's income will rise or that tax rates will fall) encourage spending. Pessimistic expectations (belief that one's income over the long run will fall, that tax burdens will rise, or any other fears for the future) encourage saving" (*Financing American Prosperity* [Twentieth Century Fund, 1945], p. 284 n).

[29] J. M. Clark has recently pointed out that influencing the propensity to spend constitutes "some of the most promising lines of effort" (*Financing American Prosperity* [Twentieth Century Fund, 1945], pp. 95 *ff*.).

people expect, will happen whether it was going to happen or not,"[30] is not generally true and, even when true, reflects only one side of the picture. It is one of the major conclusions of our study of psychology that such actions, the consequences of which are not understood or not trusted, will hardly ever arouse powerful expectations.

V. *The Elasticity of Expectations*

One further point remains to be added to the study of expectations. Strong expectations based on the understanding that a certain kind of development must inevitably occur are often "trend expectations." One believes, for example, that prices will advance a little at first, more and more later, and is convinced that the process is cumulative: small price increases are not considered the fulfillment of one's expectation but, on the contrary, as leading to, or being steps toward, further price increases. Expectations of cumulative processes are usually the basis of inflations and probably of prolonged depressions.[31]

It does not suffice to contrast such expectations with the absence of definite expectations and routine behavior. There are expectations of a different kind. We mentioned in the previous section the expectation that qualities would improve. No continuous, cumulative trend of quality improvement was expected but the resumption of producing pre-war, "normal," clothing and housefurnishing articles. When this point is reached the expectation will cease to prevail.

A somewhat different form of non-cumulative expectations can be recognized by analyzing expectations of income reductions. People might expect a cumulative process of declining incomes, of bad times that engender still worse times. In the summer of 1945 no evidence was found for such expectations; people expected temporary unemployment. Their understanding of the reconversion process implied that during the transformation to civilian output they, or many others, might become unemployed, but that later times would be good again and incomes would then increase.

Or we may take the farmer who in 1945 believed that two or three years of very good times were ahead (because of scarcity of food all over the world) but then depression would ensue. Or the business man who believed that right after the war prices would go up (because of the pent-up demand exceeding supplies), but later prices would return

[30] Boulding, *op. cit.*, p. 138. Boulding derives the "law" from his discussion of price expectations where it is much more justified than, for instance, with regard to income expectations.

[31] With respect to inflation, this thesis was expanded in the author's book, *War Without Inflation*; with respect to depression, "cumulative expectations" tend to defeat any correcting influence that small price declines may have.

to "normal." These are trend expectations, but they are not cumulative. It may and does occur that expected developments are viewed as leading to a reversal of the trend instead of to its acceleration.

The similarity of the discussion of expecting cumulative or non-cumulative processes with Hicks's distinction between elastic and inelastic expectations is obvious. According to Hicks, the elasticity of an expectation is greater than unity when a change in the current price makes people "recognize a trend" so that the expected price changes in the same direction and at a greater proportion than the current price; the elasticity is negative when a change in the current price is interpreted as the "culminating point" so that a reversal is expected.[32]

But there are differences between Hicks's and our argument. First two minor points: As Hicks himself states, he neglects the possibility that a price change may affect to a different extent the prices expected at different future times. Second, in Hicks's system there is no place for price expectations that arise after prolonged price stability. The concept of elasticity of expectations cannot be applied if there was no change in the current price. But expectations of both cumulative and non-cumulative processes do arise without a change in the current price, for one can and does expect price or income increases or decreases at a time when prices or incomes are stable.

The argument is not valid that, if we go back far enough in time, we would find price changes in every instance. Of course, it is not permissible to consider certain time-points only, neither the present moment nor any one future date. By speaking of expectations referring to different future times, the attempt was made here to avoid the second mistake; how about the first one? The answer depends upon a psychological analysis. The given time perspective[33] of the people who have the expectations must be taken into consideration, not a longer nor a shorter time period. Sometimes the perspective stretches far ahead (to first good and then bad times in the case of the farmer, for instance); sometimes it is restricted to the immediate future. Similarly with the past. For some people, say, in buying or selling a farm in 1945, what happened to land prices in 1919-20 may be part of their psychologically real perspective; for others the depression of the 1930's may be "real"; yet, for others again the effective reality may begin a few months ago or yesterday. A steel producer may have, for example,

[32] Hicks, *op. cit.*, p. 205.

[33] The concept of time perspective is similar to that of the "economic horizon" (J. Tinbergen, "The Notions of Horizon and Expectancy in Dynamic Economics," *Econometrica*, Vol. I [1933], p. 247), except that the latter extends only forward and not backward.

disregarded pre-war prices in 1945 (in his actions, not when he is asked about past prices); for him the effective time perspective began with the notion that 1945 prices (ceilings) were out of correspondence with costs. Or a munition worker may not have related his 1945 wages to pre-war wages, but may have considered them in relation to his current living costs only; or his perspective may have gone back one or two years in which his wages had not been raised.

That such differences in expectations find no place in Hicks's system is, however, much less important than the question concerning the validity of certain consequences Hicks derived from his analysis. He concluded that a system with highly elastic price expectations is unstable,[34] while price rigidities exercise a stabilizing influence.[35] Lange showed clearly that the traditional reliance on the stabilizing function of price (and wage) flexibility was justified only when certain special conditions prevailed. Under present conditions, however, when "long-range price expectations are likely to be elastic," flexibility has, in his opinion, no stabilizing influence. Therefore, he demands rigid stabilization of the price of one important good or service or of the general price level.[36]

Yet in our analysis inflexible, routine behavior was found not to be the only alternative to decisions based on "cumulative expectations" (and even in Hicks's system rigidly inelastic expectations are not the only alternatives to elastic expectations). Flexible behavior may be based on non-cumulative expectations. That a certain kind of flexibility is found to have a destabilizing influence does not imply that all flexibility must have that influence. This argument is important because flexibility in business and consumer behavior appears to be called for, and rigidity uncalled for, on grounds other than stability or instability of economic conditions.

To recall the essence of the first section of this paper, business flexibility may be said to involve the realization that conditions have changed and the choice of new policies that appear appropriate under the new conditions. What appears appropriate to an individual business man may prove inappropriate to the economy as a whole (and ultimately to the individual business man himself), which means that not all flexibility is advantageous, but policies directed toward the exclusion of all flexibility, or the flexibility of prices or profits, would nevertheless be detrimental. That policies cannot stop conditions from changing is

[34] Hicks, *op. cit.*, p. 255.

[35] *Ibid.*, p. 265.

[36] Oscar Lange, ***Price Flexibility and Employment*** (Bloomington, 1944), especially Chap. XIII. K. E. Boulding likewise asserts that, because of the influence of expectations, price or wage flexibility is no cure for unemployment or for inflation (*op. cit.*, pp. 141 *ff.*)

only part of the argument. More important is the realization that routine behavior cannot be conducive to progress. It is probable that without flexible business policies based on definite expectations there can be no expansion of the national economy and no improvement in the standard of living.

What then are the conclusions drawn from the analysis of expectations for public policy? Government action should be directed to counteract the development of cumulative expectations—the expectation of a cumulative decrease or increase of prices, profits, and incomes—but should not attempt to hinder the emergence of all kinds of definite expectations. The analysis of this requirement, the study of the question whether such action is practicable, transcends the limits of this paper. It is, however, fitting to close with the remark that here is to be found one of the most important and most fruitful fields of "economic psychology." The government should take such action that is not only desirable in itself but is also likely to arouse those expectations that are called for at the given time (for example, expectations of price stability when inflation threatens, expectations of income increases when deflation is imminent). Since expectations are not innate and are not a function of the frequency of the individual's past experience but are dependent upon his understanding of events (including government actions and government announcements), it does not seem impossible to achieve this objective. But in order to achieve it, policy makers must explore the probable effects of their contemplated actions on business and consumer expectations and must consider the presence or absence of a need for, and the means of, reorienting public thinking.

SHORTCOMINGS OF MARGINAL ANALYSIS FOR WAGE-EMPLOYMENT PROBLEMS

By Richard A. Lester*

The conventional explanation of the output and employment policies of individual firms runs in terms of maximizing profits by equating marginal revenue and marginal cost. Student protests that their entrepreneural parents claim not to operate on the marginal principle have apparently failed to shake the confidence of the textbook writers in the validity of the marginal analysis. Indeed, the trend over the past decade has been to devote more and more space in elementary textbooks to complicated graphs illustrating marginal relationships and to detailed discussions of marginal analysis under a variety of assumed circumstances.[1]

A gap, however, exists between marginal theory of the firm and general theories concerning employment, money, and the business cycle.[2] Textbooks that spend so much of the students' time on the mathematics of profit maximization according to marginal analysis may not mention that principle at all in chapters dealing with the price level, the business cycle, national income, etc. The respective rôles of markets and costs in determining output and employment are not clearly explained. The hiatus exists in Keynes's *General Theory,* despite his efforts to avoid inhabiting two separate theoretical worlds. He fails to reconcile his continued adherence to the marginal-productivity theory with his new theories of employment determination, based on effective demand.[3]

This paper does not pretend to bridge the gap between individual-firm theory and general theory. In examining the relationship between wages and employment from the point of view of the individual firm and investigating the shortcomings of marginal analysis for wage-

* The author is associate professor of economics in the department of economics and social institutions at Princeton University.

[1] The minutiae of marginalism consume, for example, approximately half of the pages of K. E. Boulding, *Economic Analysis* (1941) and A. M. McIsaac and J. G. Smith, *Introduction to Economic Analysis* (1937), and about one-third of the pages of M. J. Bowman and G. L. Bach, *Economic Analysis and Public Policy* (1943) and A. L. Myers, *Elements of Modern Economics* (1937).

[2] For a similar opinion see Jacob Marschak, "A Cross Section of Business Cycle Discussion," *Am. Econ. Rev.*, Vol. XXXV, No. 3 (June, 1945), pp. 371-72.

[3] See *The General Theory of Employment, Interest and Money* (1936), Pp. 5, 17-18, and 77.

employment matters, it does, however, represent a step in that direction. Much more evidence must be accumulated before definitive conclusions can be drawn regarding wage-employment relationships. The tentative conclusions of this paper are based on scattered evidence, including new material collected by the author, partly from discussions with numerous Southern business executives but mainly in the form of written replies by 50-odd concerns to questions concerning the relative rôle of different factors in determining their employment, alterations in their variable costs per unit with changes in rate of output, and their probable adjustments to an increase in wages relative to those paid by competing producers.[4]

As much of the evidence in the paper rests on the written replies of 58 Southern concerns, a brief explanation of the selection and collection procedures used is given at this point. A detailed questionnaire was mailed in June, 1945, to the presidents or executive officers of 430 Southern manufacturing firms in industries known to have a significant North-South wage differential. Anonymous reply was possible and most answers were not identified. A total of 68 replies were received. However, 10 firms answered that most of the questions were too difficult or would require too much time to answer, so that only 58 of the replies contain answers to two or more of the questions. The 58 replies are distributed as follows by industry: 17 furniture producers, 13 metal-working firms (foundry, machinery and valve producers), 11 cotton clothing manufacturers (producing work clothes, men's shirts, women's dresses, and cotton underwear), 4 full-fashioned hosiery manufacturers, 3 producers of shoes and leather, 3 paint producers, 4 chemical manufacturers, and 3 stove producers.[5] Employment in these 58 firms averaged 600 (range 8[6] to 8,200).

I

The relative importance of various factors (market demand, wage rates, non-labor costs, profits, production techniques, etc.) in determining the volume of employment offered by a firm constituted the subject matter of the first set of questions in the questionnaire. The objective was to obtain the judgment or opinion of the business executives, partly

[4] Financial support for this study has been supplied by the General Education Board.

[5] The 430 companies to which questionnaires were sent were distributed as follows: 103 furniture, 59 metal-working, 146 cotton clothing, 23 full-fashioned hosiery, 19 shoes and leather, 25 paint and varnish, 17 chemicals, and 30 stoves. Only companies located entirely in the South were selected, and practically all of them were located in only one community. Geographically the replying firms are confined to the following states: Alabama, Arkansas, Florida, Georgia, Louisiana, North Carolina, Tennessee, Texas, and Virginia.

[6] The next smallest firms are two with 25 employees each.

because policy decisions in those firms presumably are based largely upon such opinions.

The executives were asked: "What factors have generally been the most important ones in determining the volume of employment in your firm during peacetime?" They were requested to rate the factors in terms of the percentage of importance of each; the total was not to exceed a rating of 100 per cent, and, if one factor alone was important, it was to be marked 100 per cent. The listing of the factors was as follows:

a. Present and prospective market demand (sales) for your products, including seasonal fluctuations in demand. ½ : 100%

b. The level of wage rates or changes in the level of wages. very low rating

c. The level of material costs and other non-wage costs and changes in the level of such non-labor costs.

d. Variations in profits or losses of the firm.

e. New techniques, equipment, and production methods.

f. Other factors (please specify).

The answers gave overwhelming emphasis to current and prospective market demand for products of the firm as the important factor in determining its volume of employment. Out of 56 usable replies, 28 (or one-half) rated factor *a* (market demand) at 100 per cent. Both shoe producers, 3 out of the 4 full-fashioned hosiery firms, and 11 out of the 16 furniture manufacturers were in that category; on the other hand, only 3 out of the 11 cotton clothing concerns and none of the 3 paint companies rated market demand 100 per cent.

The replies of the other 28 firms that rated two or more factors as important are summarized in Table I.

Factor *b* (wages and changes in wage levels) and factor *d* (profits) are rated surprisingly low by the executive officers of these 56 firms in view of the emphasis placed on those two factors by marginal analysis. On the other hand, the relative stress placed on materials and other

TABLE I.—RELATIVE IMPORTANCE OF FACTORS INFLUENCING A FIRM'S EMPLOYMENT AS INDICATED BY WEIGHTING GIVEN BY 28 FIRMS RATING 2 OR MORE FACTORS

	a (Market)	b (Wages)	c (Non-labor) costs	d (Profits)	e (Technique)	f (Others)
Number of times mentioned	28	13	18	11	16	5
Average weight per time mentioned	65%	15%	14%	13%	17%	16%
Average for all 28 replies	65.0%	7.6%	9.5%	5.1%	9.7%	3.1%

non-labor costs as a factor in determining the firm's volume of employment is surprisingly high. Non-labor costs are mentioned more frequently than wages, and they are considered more important than wages in determining the volume of employment by the replying firms in the furniture, cotton clothing, paint, and chemical industries. Indeed, wages are not given a rating at all by any of the replying paint or chemical concerns, and only one out of 6 metal-working firms marking two or more factors gave any weight to wage item *b*. Yet labor costs were an important element in the total costs of practically all of these firms.[7]

The relative rating of item *e* (new techniques and changes in production methods) is not unexpected. The other factors mentioned under item *f* included "competition" and "management," which might perhaps have been properly included under items *a* and *e*. Replies of at least two firms indicated a realization that the various factors listed were not completely independent. That was, of course, correct.[8]

The failure to lay more stress on wages as a factor in determining the volume of employment is all the more surprising in view of the relatively high ratio of labor to total cost in most of the replying firms. Indeed, the correlation is remarkably low between the stress placed on wages as an employment factor and the percentage that labor costs are of the firm's total costs. True, 5 out of the 11 concerns with labor costs constituting from 40 to 60 per cent of total costs marked wages as an important item in determining the firm's employment,[9] whereas only one of the 10 firms with wages from 12 to 20 per cent of total costs did so. However, only one-tenth of the firms with wages ranging from 30 to 39 per cent of the total cost mentioned wages as an important employment factor, whereas one-third of the firms with labor costs ranging from 21 to 29 per cent of total costs marked wages along with one or more other factors.

In qualifying or elaborating their answers regarding the rôle of present and prospective demand for the firm's product, 8 concerns explained that they manufacture for stock during dull seasons, 3 others said that demand for their products had been stable or steadily increas-

[7] Each firm was requested to state the percentage that labor costs are of its total costs. The average for all replying firms was labor costs 29.3 per cent of total costs (range 12 to 60 per cent). The average was 23 per cent for shoes and leather, 24 per cent for paint, 25 per cent for furniture, 31 per cent for chemicals, 33 per cent for cotton clothing, full-fashioned hosiery, and stoves, and 39 per cent for metal-working concerns. Judging by census data, the average for all manufacturing is around 20 per cent.

[8] For example, wages affect profits and may influence the introduction of new techniques.

[9] The top firm, with labor costs at 60 per cent of total cost, was not, however, one of the 5.

ing before the war, and 2 others replied that the operation of their equipment requires "just so many men," so that "during peacetime employment is more or less permanent."

It is clear from numerous interviews that most business executives do not think of employment as a function of wage rates but as a function of output.[10] When questioned regarding the employment effects of increased or reduced wages they usually end up by stating that orders, not wage changes, are the important factor in output and employment. As explained in Section III below, business executives generally do not think of deliberate curtailment of operations and employment as an adjustment to wage increases, partly because some plants and operations require fixed crews under existing techniques of production and partly because, as indicated under Section II below, business men believe that variable costs per unit of production increase as production and employment are curtailed.

II

In recent years a number of attempts have been made to discover the way costs vary with changes in output. Individual-firm studies by Joel Dean and Theodore O. Yntema indicate that average variable costs (and marginal costs) tend to be constant per unit of product over the usual range of output, which includes up to practically full capacity.[11] Other statistical studies suggest that a great number of American manufacturing firms operate under increasing average

[10] That our business men are no different in this regard from business men abroad seems to be indicated by experience in Germany under the "Papen Plan" for economic recovery introduced in September, 1932. Through tax subsidies and other concessions, German entrepreneurs were able to hire additional workers, on the average, for about half the existing wage rates. Although such wage reduction for additional employees might have been expected to increase employment, employers hesitated to increase employment and output without an increase in orders, so that unemployment in Germany increased about 20 per cent during the 5 months following introduction of the plan. See Gerhard Colm, "Why the 'Papen Plan' for Economic Recovery Failed," *Social Research*, Vol. I (Feb., 1934), especially pp. 90-91.

See also E. Ronald Walker's opinion based on Australia's experience during the 1930's in *From Economic Theory to Policy* (Chicago, Univ. of Chicago Press, 1943), pp. 73-74.

[11] See Joel Dean, *Statistical Determination of Costs With Special Reference to Marginal Costs* (Chicago, Univ. of Chicago Press, 1936), *Statistical Cost Functions of a Hosiery Mill* (Chicago, Univ. of Chicago Press, 1941), and *The Relation of Cost to Output for a Leather Belt Shop* (New York, Nat. Bur. of Econ. Research, 1941); and United States Steel Corporation, *T.N.E.C. Papers*, Vol. I, pp. 223-302. For criticisms, see Hans Staehle, "Statistical Cost Functions: Appraisal of Recent Contributions" *Am. Econ. Rev.*, Vol. XXXII, No. 2 (June, 1942), pp. 321-32; Caleb Smith, "The Cost-Outpost Relation for the U.S. Steel Corporation," *Rev. Econ. Stat.*, Vol. XXIV (Nov., 1942), pp. 166-76; and Everet Straus, "Cost Accounting and Statistical Cost Functions," *Am. Econ. Rev.*, Vol. XXXV, No. 3 (June, 1945), pp. 430-31.

variable labor returns, primarily because marginal labor requirements decrease per unit as output rises toward full capacity.[12] Some studies indicate a definite tendency, especially in the durable goods industries, toward decreasing marginal cost of production, at least until almost full capacity is reached.[13]

In the present study, a series of questions was asked regarding unit variable costs and profits at various rates of output. In reply to the question, "At what level of operations are your profits generally greatest under peacetime conditions?" 42 firms answered 100 per cent of plant capacity. The remaining 11 replies ranged from 75 to 95 per cent of capacity.[14] Six of the 11 did not answer succeeding questions that would have supplied substantiating data. Some of them said these succeeding questions were "too theoretical" or "too technical," or that "data were not available for an exact answer." One simply stated: "Our cost is based on 90 per cent of capacity." Of the 5 firms that did offer substantiating material, 3 gave cost estimates and 2 gave the following reasons: "Assuming that if we were at 100% we would have to pay considerable overtime wages," and "Theoretical 100% is likely to produce too many strains."

The executives were also asked how, in peacetime, their factory operating costs (excluding overhead or fixed charges) per unit of output are usually affected by an increase or a decrease in the company's rate of operations. More specifically they were asked the percentage by which an increase in operations from 95 to 100 per cent (also 90 to 95 per cent, 80 to 90 per cent, and 70 to 80 per cent) would tend to result in a rise or fall in operating or variable costs per unit of output. The answers are summarized in Table II for 32 firms giving data indicating they have decreasing marginal variable costs up to 100 per cent capacity,[15] along with 3 firms giving data showing increasing marginal

[12] See, for example, B. H. Topkis, "Labor Requirements in Cement Production," *Mo. Lab. Rev.*, Vol. XLII (March, 1936), p. 575; B. H. Topkis and H. O. Rogers, "Man-Hours of Labor per Unit of Output in Steel," *Mo. Lab. Rev.*, Vol. XL (May, 1935), p. 1161; and M. Ezekiel, *$2,500 a Year* (New York, Harcourt Brace, 1936), pp. 180-82.

[13] Henry M. Oliver, Jr., "The Relationship between Total Output and Man-Hour Output in Manufacturing Industry," *Quart. Jour. Econ.*, Vol. LV (Feb., 1941), pp. 239-54; and M. Ezekiel and K. H. Wylie, "Cost Functions for the Steel Industry," *Jour. Am. Stat. Assoc.*, Vol. XXXVI (March, 1941), pp. 91-99.

[14] These 11 firms were distributed as follows: 1 in furniture, 3 in cotton clothing, 2 in paint, 1 in chemicals, 1 in stoves, and 3 in metal-working.

[15] An additional firm stated that its variable costs per unit decreased with increased operations from 70 to 100 per cent of capacity but it did not offer any percentage figures. A study by the Oxford economists indicated that 13 firms were operating under conditions of decreasing costs, 4 under conditions of constant cost, and 2 under increasing costs. See R. L. Hall and C. J. Hitch, "Price Theory and Business Behaviour," *Oxford Economic Papers*, No. 2 (May, 1939), p. 20, footnote 1.

costs beginning at 90, 80, and 75 per cent of capacity.[16] Firms reporting decreasing unit costs up to 100 per cent of capacity have also been classified according to the percentage that their labor costs are of total costs, and averages for 4 categories of labor-cost ratios are given.

The following table indicates some differences in the slope of the average decreasing unit cost curve for different industries. The decline is especially sharp for the metal-working firms and for others (full-fashioned hosiery, shoes, and chemicals) at operations between 70 and 90 per cent of plant capacity. For furniture firms, on the other hand, the rate of decrease in unit variable costs is reported to be higher from 95 to 100 per cent or from 90 to 95 per cent of capacity than it is from 70 to 80 per cent or 80 to 90 per cent of capacity.

The answers seem to indicate that the percentage of labor to total cost of production has little direct influence upon the slope of the decreasing unit cost curve at operations between 70 and 100 per cent

TABLE II.—DECLINE IN UNIT VARIABLE COST WITH INCREASE IN SCALE OF OUTPUT

	Increase of operations (in % of plant capacity)			
	95 to 100%	90 to 95%	80 to 90%	70 to 80%
Average for 33 firms with maximum profits at 100% capacity	5.5%	5.7%	7.7%	9.5%
14 furniture firms	6.4	5.9	4.6	5.2
7 cotton-clothing firms	5.6	4.9	6.9	7.5
6 metal-working firms	4.8	7.9	12.5	15.9
6 others	4.7	5.4	9.6	13.9
Average for decreasing cost firms with labor-to-total-cost ratios from				
40 to 60% (6 firms)	4.1%	4.4%	6.6%	8.1%
30 to 39% (6 firms)	2.1	2.3	4.3	5.2
21 to 29% (13 firms)	8.1	7.2	5.8	5.5
12 to 20% (6 firms)	1.9	2.0	4.2	6.2
3 firms with maximum profits at 90, 80 and 75% of capacity				
1 cotton-clothing firm	1.0% rise	1.0% drop	1.5% drop	4.0% drop
1 paint producer	25.0% rise	25.0% rise	10.0% rise	0.0%
1 chemical concern	10.0% rise	? rise	? rise	0.0%

of capacity. The average slope of the unit cost curve for firms with labor-cost ratios from 40 to 60 per cent resembles that of the curve

[16] A total of 17 firms that answered the other questions declined to attempt answers to this one, giving such reasons as "don't know," "no accurate figures," "no exact answers," and "too much theory." In addition, 4 firms gave non-numerical answers that roughly indicated the character of their cost-output relations; their answers are referred to in the text.

for firms with ratios from 12 to 20 per cent. The peculiar slope of the average curve for firms with labor-cost ratios from 21 to 29 per cent apparently is largely explained by the fact that furniture firms predominate, representing 9 of the 13 firms in that classification.

Constant unit variable costs between the range of 70 and 100-per cent capacity operations were reported by 3 firms.[17] In addition, 2 concerns[18] reported such constant costs between 90 and 100 per cent of capacity, and 6 others[19] gave figures showing a per unit cost variation of no more than from 1 to 8 per cent over the whole range from 70 to 100 per cent of capacity. The president of one chemical firm, not included in the above data, replied: "I am not in a position to estimate exact answers, but believe that operating costs in the brackets you outline would vary little. Of course, costs would fall if we increased our operations from 70 to 100 per cent."

As further checks on the replies of the executives, they were asked: "Under normal peacetime conditions, is it possible at times to reduce your operating costs per unit of output by lowering your rate of operations?" Of 44 replies, 43 were "no" and one was "yes." Some replying "no" qualified their answers. One said, "By reducing from more than 100% of capacity to 100%, costs are likely to fall." Another added, "If we work regular hours 100% capacity is point of greatest efficiency and lowest cost but may not be if that involves a great deal of overtime." A number remarked that plant efficiency tends to fall as operations are reduced, that payroll costs do not increase in direct proportion to the volume of operations so that operating costs per unit are lower at higher levels of output, or that operating costs per unit always are lower as 100-per-cent capacity production is approached. The firm answering "yes" gave as its explanation of how lowered operations would permit lower unit variable costs: "Get rid of all incompetent employees, cease selling to chiselers and risky accounts, do more of work instead of paying some one else to do it."

A few of the answers to this question raise doubts as to the validity of the replies of some firms to previous cost questions, particularly those reporting increasing marginal variable costs beginning at 75 to 95 per cent of capacity. Two of the replies may also indicate a failure to distinguish clearly between fixed and variable costs. Nine of the firms reporting maximum profits at 75 to 95 per cent of capacity answered "no" to this question as to whether it was possible to reduce

[17] Two in furniture and one in clothing. To quote from the explanation of two of them: "Our unit cost remains the same if you exclude overhead and fixed charges," and "As long as overhead and fixed charges are excluded, the unit cost would not vary much either way, if any."

[18] One in furniture and one in metal-working.

[19] Three in furniture, two in shoes, and one in metal-working.

unit variable costs by lowering the rate of operations.[20] Those 9 included the 3 firms that reported U-shaped cost curves, with rising unit variable costs beginning at 75, 80, and 90 per cent of capacity. Two of them were the only replying firms in their industries that reported such cost curves below 100 per cent of capacity.[21]

The significant conclusion from the data in this section is that most of the manufacturing firms in the industries covered by this survey apparently have decreasing unit variable costs within the range of 70 to 100 per cent of capacity production—or at least their executive officials believe that to be the case, which is the important factor in determining company policy, whatever the actual facts may be.[22]

If company output and employment policies are based on the assumption of decreasing marginal variable cost up to full capacity operations, much of the economic reasoning on company employment adjustments to increases or decreases in wage rates is invalid, and a new theory of wage-employment relationships for the individual firm must be developed.

The Oxford economists found that a great majority of the business entrepreneurs they questioned[23] "were in profound ignorance" regarding the elasticity of demand for their products and that "answers to questions about increasing or decreasing marginal prime costs were seldom given with confidence."[24] Their sample "erred, if at all, by being biased in favor of well-organized and efficiently conducted businesses," and the entrepreneurs convinced the economists that uncertainty concerning elasticities of demand and marginal prime cost were "'due not to any negligence or lack of zeal for knowledge" on the part of the business men "but to the nature of the case."[25] The economists concluded that the results of their study "seem to vitiate any attempts to analyse normal entrepreneurial behaviour in the short period in terms of marginal curves. They also make it impossible to assume that wages in the short run will bear any close relation to the

[20] The other two of the 11 firms in that category failed to answer this question.

[21] Seven other cotton-clothing firms and 3 other chemical concerns definitely reported decreasing unit costs. The two other paint companies gave no detailed cost figures. One reported maximum profits at 100 per cent of capacity and the other at 80 per cent of capacity.

[22] The T.N.E.C. study of *Industrial Wage Rates, Labor Costs and Price Policies* (monog. no. 5, 1940) revealed that unit labor costs increased as volume fell and declined as rate of operations expanded in the International Harvester Company's plants and in the plants of two paper companies; operating efficiency was lower when volume was small, partly because of more frequent shifting with shorter runs (see pp. xix, xx, 35-37, and 117-19).

[23] Apparently the statements quoted in this paragraph rest primarily on the evidence of 38 of the entrepreneurs interviewed.

[24] R. F. Harrod, "Price and Cost in Entrepreneurs' Policy," *Oxford Economic Papers*, No. 2 (May, 1939), pp. 4, 5.

[25] *Ibid.*, p. 5.

over

marginal product (or marginal revenue) of the labour employed."[26]

The present author's interviews with business men indicate that most entrepreneurs do not tend to think in terms of marginal variable cost. The heads of manufacturing concerns hiring, say, 50 or more workers consider such a procedure both unnecessary and impractical because (1) they seem convinced that their profits increase as the rate of operations rises, at least until full plant capacity is reached—they have no faith in the validity of U-shaped marginal variable cost curves unless, perhaps, overtime pay is involved; (2) they consider repeated shifts in the size of a plant's working force, or in its equipment, with changes in the relative costs of different productive factors to be impractical, their adjustments to cost changes taking most frequently the form of product shifts that require little, if any, alteration in equipment; and (3) they see the extreme difficulty of calculating marginal variable costs and the marginal productivity of factors, especially in multiprocess industries and under present accounting methods. In thinking about employment in their firm, therefore, they tend to emphasize current and prospective demand for their products and the full-crew requirements for their existing facilities, rather than the current level of wage rates.

III

The practical and technical difficulties involved in attempting to apply the marginal analysis to wage-employment matters deserve more attention than can be given them here. This discussion only indicates some of the problems involved in shifting the proportion of factors in manufacturing plants or in calculating the marginal contributions of factors, and, at the same time, points to certain disturbing data.

There is a lack of good case material on the redistribution of factors purely in response to increases or decreases in wage rates. The very existence of unused plant capacity indicates that it is not feasible to substitute capital equipment for labor; otherwise that would have been done because the use of such idle equipment is practically "costless" in view of the fact that fixed charges on it cannot be avoided.

Most industrial plants are designed and equipped for a certain output, requiring a certain work force. Often effective operation of the plant involves a work force of a given size.[27] Certain techniques of

[26] R. L. Hall and C. J. Hitch, "Price Theory and Business Behaviour," *Oxford Economic Papers*, No. 2, p. 32.

[27] That, for example, is largely true of automatic-machine tending (such as is characteristic of pulp and paper plants, metal and oil refineries, chemical plants, textile mills, etc.) and of assembly-line operations. It is also true that the size of the work force is largely fixed in service lines like banks, rail and bus transportation, theaters, postal delivery, etc.

production, allowing little variation in the use of labor, may be the only practical means of manufacturing the product. Under such circumstances, management does not and cannot think in terms of adding or subtracting increments of labor except perhaps when it is a question of expanding the plant and equipment, changing the equipment, or redesigning the plant. The flexibility of many plants is, however, extremely limited, especially those designed for early stages of manufacturing, such as the smelting, refining, compounding, and rolling of materials.

From much of the literature the reader receives the impression that methods of manufacture readily adjust to changes in the relative costs of productive factors. But the decision to shift a manufacturing plant to a method of production requiring less or more labor per unit of output because of a variation in wages is not one that the management would make frequently or lightly. Such action involves the sale (at a loss?) of existing facilities not usable under the new method and the purchase of new facilities and equipment to replace those discarded, to say nothing of retraining workers and readapting the whole organization.[28] Such new investment presumably would not be undertaken simply to reduce a current and expected net loss, or if there was a likelihood that the wage change would only be temporary or that the cost relationships between factors would be considerably altered again in the near future.[29]

Those who argue for wage reductions on the grounds that a certain relationship exists between wage rates and employment tend to overlook the fact that a shift to less capitalistic or more labor-consuming method may be impractical not only for reasons given above but also because the skilled workers necessary to operate the antiquated equipment are no longer available. Indeed, as Randall Hinshaw points out, writers who believe a wage reduction will tend to stimulate new investment often appear to assume that the investment will be in the form of the most up-to-date equipment, which would require less rather than more labor per unit of output.[30] That, of course, would be contrary to what one might expect from marginal analysis.

That industry does not adapt its plants and processes to varying wage rates in the manner assumed by marginalists seems to be in-

[28] Not to mention countless other problems like the effect of any lay-offs on the company's unemployment tax under experience rating, possible changes in its property-tax assessment, or resulting changes in employee or community attitudes.

[29] The management might also hesitate to take such action if the market value of facilities and equipment to be sold was expected to rise, or if the market value of the equipment to be bought was expected to fall, or if marked improvements in technique were in the offing.

[30] See his unpublished Ph.D. thesis, *Wages and Unemployment, A Preliminary Analysis* (Princeton University Library, 1944), p. 122.

dicated by data recently collected by the author.[31] Executives of 112 firms with plants in both the North and the South were asked in January, 1945, the following question: "Have lower wages in the South *themselves* caused your company to use production techniques or methods in its Southern plant(s) that require more labor and less machinery than the proportions of labor to machinery used in its Northern plant(s)?" Of 44 replies, one was vaguely affirmative, one was indefinite, and 42 answered "no." Of the 42, a total of 35 stated that, for all comparable jobs, average wages in their Southern plants were below the average for their Northern plants. On that basis, the wages in the Southern plants averaged per firm from 5 to 30 per cent below the Northern plants, with the average North-South differential for all 35 firms at 15 per cent. Those 35 replying firms represent a wide variety of industries[32] and had a total of over half a million employees in 150 plants in the South and 491 plants in the North. Some of them stated that the existence of lower wages in the South did not influence the type of machinery installed nor the processes used there, that "the most efficient equipment available" is used in every plant regardless of location or relative wage levels.

The sample probably contains offsetting biases: in favor of concerns in a good position to make close comparative cost calculations and in favor of large firms with relatively low labor-to-total-cost ratios. Nevertheless, it should be pointed out that included in the 35 concerns are 15 in industries that, on the average, have labor costs amounting to 25 to 40 per cent of total production costs[33] and 11 that were paying wage rates in the South from 20 to 30 per cent below their comparable Northern rates. Surely, if wage rates were as important in determining the proportion of factors or a firm's employment as the textbooks imply, the completely negative results from this test would not have been possible.

A T.N.E.C. study of wage rates, labor costs, and technological change in two shoe companies, two paper companies, two mills of a textile company, and plants of the International Harvester Company in the 1930's indicated that increases in wage rates were not the most important or decisive factor—in fact may have no significant influence—in the determination and timing of technological changes.

[31] These data are more fully discussed and explained in a forthcoming article in the *Journal of Political Economy* entitled, "Effectiveness of Factory Labor, South-North Comparisons."

[32] Including 7 cotton and rayon textile firms, 5 building materials producers, 4 food companies, 3 rubber companies, and 2 firms in each of the following industries: clothing, hosiery, oil, chemicals, paper and pulp, metals, furniture and plywood, and aircraft and construction equipment.

[33] Cotton textiles, full-fashioned hosiery, furniture, cotton clothing, and rubber.

For the most part there appeared to be little casual connection between increased labor costs and the introduction of capital improvements.[34]

There is no need to discuss at length in this paper the technical difficulties involved in any attempt to discover the marginal product of an added unit of labor in large-scale industry and to impute to that unit of labor its value contribution to a joint, multi-processed product. Such difficulties have been discussed elsewhere in detail by the author.[35] More recently W. J. Eiteman has succinctly explained the "hopeless complexity" that would attend any attempt to apply marginal analysis to modern manufacturing establishments.[36] His demonstration leaves no doubt that it would be utterly impractical under present conditions for the manager of a multi-process plant[37] to attempt, by means of repeated variation in the number of men employed, to work out and equate marginal costs and marginal returns for each productive factor.

IV

The foregoing discussion and data throw light on experience under the Fair Labor Standards act that has been difficult to explain by conventional marginal theory, and they also help to illuminate the answers of Southern business executives to a group of questions on probable adjustments to an increase in their wage rates relative to those paid by competitors in other regions.

For example, the South-North wage differential in the men's cotton garment industry (shirts, collars, nightwear, work clothes, and pants) was reduced, on the average, by one-third between March, 1939, and March, 1941, primarily as a result of the establishment of a statutory minimum of 30 cents in October, 1939, under the Fair Labor Standards act and an industry wage order setting minimum wages in the industry at 32½ to 40 cents (depending on the product), effective in July, 1940; yet between March, 1939, and March, 1941, employment in 180 identical plants increased more than one and a half times as fast in the South as in the North.[38]

[34] See *Industrial Wage Rates, Labor Costs and Price Policies,* T.N.E.C. monog. No. 5, pp. xxv, 25, 42, 53, and 136.

[35] *Economics of Labor* (1941), pp. 175-84.

[36] "The Equilibrium of the Firm in Multi-Process Industries," *Quart. Jour. Econ.* Vol. LIX (February, 1945), pp. 280-86.

[37] A plant in which more than one type of operation or process is performed and which has, therefore, more than one "cost center."

[38] Separate figures for branches of the industry show somewhat varying results. Employment did decrease slightly in Southern plants producing shirts, collars, and nightwear, where the North-South wage differential was being practically eliminated, but in the work clothing and cotton pants branch employment increased more than twice as fast in the South as in the North despite a reduction of more than 50 per cent in the North-South wage differential. See "Earnings in the Men's Cotton-Garment Industries, 1939 and 1941," *Mo. Lab. Rev.,* Vol. LV (August, 1942), p. 349.

The same pressure of minimum wages had similar results in the wood furniture industry. Between October, 1937, and February, 1941, the South-North wage differential was reduced about 7 per cent for 72 identical wood furniture plants, with the establishment of a statutory minimum of 25 cents in October, 1938, and 30 cents in October, 1939, and the setting of minima from 32½ to 40 cents in the principal industries competing with Southern furniture manufacturers for labor.[39] Not only did employment for the industry as a whole increase the most in firms with the lowest average hourly earnings in 1937, where the statutory minima obviously had the greatest direct and immediate effect; but employment in the Southern plants increased 26 per cent, whereas it decreased slightly in competing Northern firms during the period (October, 1937 to February, 1941); and, within the South, employment expanded more than twice as fast in the lower-wage firms[40] whose wages were increased 10 per cent as it did in the higher-wage firms where the increase in wages was less than 2 per cent.[41]

Various factors were, of course, responsible for employment results so contrary to the presuppositions of conventional marginalism in such industries as men's cotton clothing and wood furniture. For the purposes of this paper there is no need to analyze individual cases where the results are so opposite to the expectations of marginal analysis and to assess the responsibility of each factor for those results.[42] Such data

[39] Seamless and full-fashioned hosiery, men's cotton clothing, and cotton textiles.

[40] Averaging under 35 cents an hour in 1937.

[41] The actual changes in hourly earnings and employment in 72 wood furniture plants from October, 1937 to February, 1941, were as follows:

Plants with average hourly earnings in 1937	*Percentage increase in average hourly earnings, 1937 to 1941*		*Percentage increase in employment, 1937 to 1941*	
	U.S.	*South*	*U.S.*	*South*
Under 32.5 cents	11.2%	10.2%	26.3%	29.1%
32.5 and under 35.0 cents	7.6	9.9	38.1	38.1
35.0 and under 37.5 cents	8.3	1.7	30.7	18.5
37.5 cents and over	2.4	1.7	0.4	16.8

Sources of data: *Earnings and Hours in the Furniture Industry, February 1941*, U. S. Bur. of Lab. Stat., Serial No. R. 1330, 1941, Table 3, p. 11, and *Minimum Wages in the Wood Furniture Manufacturing Industry*, Wage and Hour Division of U.S. Dept. of Labor, June, 1941, pp. 24–28. The employment increase for the South of 16.8 per cent was calculated from data in the latter publication on p. 28.

[42] The notion that variations in geographic wage differentials and changes therein fairly accurately reflect geographic differences in labor effectiveness so that "efficiency-wages" are approximately the same for all regions or areas seems to be disproved by a North-South comparison that the author made between wages and labor efficiency in 41 firms with

have been mentioned here merely to indicate that the replies of the Southern business executives discussed in this section do have some basis in fact and experience. Furthermore, furniture and men's cotton clothing concerns constitute half of the 43 Southern firms that gave full answers to a group of questions concerning the adjustments they would make to a sharp narrowing of the North-South wage differential in their industry.[43] The basic question was as follows:

> Suppose that during the first 3 years after the defeat of Japan the average North-South wage differential in your industry should be cut in half, causing Southern wage rates in your line to rise relative to those of your competitors in the North. Assuming no other change in your costs and no decline in the nation's demand for the type of products you manufacture, how would your firm be likely to adjust to such a permanent 50-per-cent reduction in the North-South wage differential?

The executives were requested to rate each factor in terms of the relative importance or share in the total adjustment for which it would be responsible, the rating being in percentage terms on the basis of a composite of 100 per cent. The following list of factors was provided:

a. Install additional labor-saving machinery.
b. Improve efficiency through better production methods, organization, supervision, incentives, workloads, etc.
c. Change the price, quality, or kind of products manufactured.
d. Increase sales efforts so as to expand sales and production.
e. Reduce production by deliberately curtailing output.
f. Other adjustments (please specify).

The replying firms estimated their wage rates to be from 5 to 40 per cent under the average for comparable jobs in the North. The average for all replying was 18.2 per cent, so that the question involves, on the average, an increase of 11 per cent in the wage scale of replying firms in the South, assuming no change in the wage level of their Northern competitors.

As the replying firms are mostly in industries that experienced some narrowing of the North-South wage differential under the National Recovery act and Fair Labor Standards act, their answers are founded on recent experience. Indeed, the replies are extremely helpful in interpreting that experience. They are summarized and classified by

plants in both regions. See a forthcoming article, "Effectiveness of Factory Labor, South-North Comparisons," in the *Journal of Political Economy*.

[43] Ten firms declined to answer this set of questions on the ground that there was at present no differential, or only a negligible one, between their wage rates and average rates for comparable jobs in the North. Four of the 10 were in men's cotton clothing, in which previous figures have shown the North-South differential was rapidly reduced between 1939 and 1941.

industry and labor-cost ratios in Table III. Also, Table III contains a summary for the 11 firms that estimate their wage rates to be from 25 to 40 per cent under the average rates of their Northern competitors for comparable jobs, and it is significant that the averages for those 11 firms (for which the question posits a selected wage increase of 17 to 33 per cent) are very similar to the averages for all 43 firms.[44]

TABLE III.—ADJUSTMENTS OF 43 SOUTHERN FIRMS TO SHARP NARROWING OF NORTH-SOUTH WAGE DIFFERENTIALS, FACTORS WEIGHTED ACCORDING TO PERCENTAGE OF IMPORTANCE

Classification of firms	a (labor-saving machinery)	b (improved methods and efficiency)	c (price-product changes)	d (increased sales efforts)	e (curtail output)	f (other)
Number of firms giving factor weight	35	36	19	31	4	4
Average weight per stressing firm	33%	36%	41%	29%	43%	20%
43-firm average of weights	26.1%	29.6%	17.5%	20.7%	4.1%	20%
Average for 14 furniture firms	19.6	23.2	34.3	17.9	.7	4.3
Average for 7 men's cotton clothing firms	24.3	40.0	17.1	18.6	—	—
Average for 10 metal-working firms	35.0	28.5	5.5	20.0	11.0	—
Average for 12 other firms	27.5	32.4	8.8	24.3	5.0	2.0
Average for 11 firms with North-South wage differential of 25 to 40%	25.0	30.5	10.9	20.0	10.0	3.6
Average for firms with labor-to-total cost ratios from						
40 to 60% (8 firms)	41.9	23.1	19.4	13.1	1.2	1.3
30 to 39% (8 firms)	33.1	28.7	14.4	15.0	6.3	2.5
21 to 29% (10 firms)	17.8	32.8	31.1	18.3	—	—
12 to 20% (9 firms)	22.8	36.2	7.8	26.7	1.0	5.5

The adjustment most frequently mentioned by the 43 firms was factor *b,* improvements in efficiency through better management, incentives, etc. Introduction of labor-saving machinery is the second most significant adjustment according to the results in Table III, and increased sales efforts ranks third. Price-product changes are considered the most important adjustment by some furniture concerns (3 of them

[44] The principal exception is that the factor of curtailing output has an average of 10 per cent for the 11 firms compared with an average of 4.1 per cent for all 43 firms. Responsibility for that result rests on one metal-working firm with a North-South wage differential estimated at 25 per cent, which rated this factor 100 per cent. Elimination of that firm would reduce the average for the factor of curtailing output to one per cent for the remaining 10 firms with large North-South wage differentials. The firm, subsequently discussed, failed to report its ratio of labor costs to total costs so it is not included in the last group of figures in Table III.

placing sole stress on that factor),[45] but for the other firms such changes are considered of minor significance.[46]

It is especially noteworthy that deliberate curtailment of output, an adjustment stressed by conventional marginal theory, is mentioned by only 4 of the 43 firms.[47] Two of them, rating it at 10 per cent, had reported decreasing unit variable costs up to 100 per cent of plant capacity; however, their percentage decreases in moving from 70 to 100 per cent of plant capacity totaled only 8 per cent in each instance. The third firm, rating this factor 50 per cent, is the chemical concern in Table II that reported sharply increasing unit variable costs between 95 and 100 per cent of capacity and maximum profits in peacetime at 75 per cent of capacity. The fourth firm, a fabricator of steel structures and tanks with 125 employees, although reporting maximum profits at 100 per cent of capacity and decreasing unit variable costs between 70 and 100 per cent of capacity, places sole stress on this factor, making the following statement: "Volume of production would be reduced to small sales for a local market. The only reason we can now compete with the large Northern firms is due to the difference in wage scale. They have enormous advantages in freight rates and more skilled type of workman."

That business concerns stress item *b,* improved management and efficiency, may seem surprising to economists, who have generally reasoned as one replying executive, who stated: "Doing all these things is a continuous process with us. I don't see what the wage level has to do with it." Nevertheless, experience under the N.R.A. and the Fair Labor Standards act indicates that the spur of increased wages does lead to improved plant organization. An executive of one of the largest cotton-textile concerns in the South has testified that, under the N.R.A. requirement that the same wages be paid for 40 hours of work as formerly were paid for 55 hours, the firm's actual increase in labor

[45] One furniture executive said he would enter a new field of manufacture of advanced products in furniture and veneers. However, another furniture manufacturer reported: "Such a change would affect us but very little as 90% of our market is in the South."

[46] "Other" adjustments were: "Use only higher skilled employees," "Replace inefficient labor with efficient labor," and "Several."

[47] Yet, reasoning on the basis of conventional theory, D. K. McKamy and John V. Van Sickle argue that elimination of the North-South wage differential by government action would result in "an enormous and legislated growth of unemployment," because "those enterprises in the areas of labor surplus which are unable to earn enough money to pay the imposed wage would have to go out of business or reduce employment to the point where the last workers employed were worth as much as the imposed minimum." See *Statement of D. K. McKamy and Dr. John V. Van Sickle with Regard to the Demand of the Union for Elimination of Geographical Wage Differentials,* Company's Exhibit No. 28, In the Matter of Carnegie-Illinois Steel Corporation, et al., and United Steelworkers of America, Before the Steel Panel of the National War Labor Board, Case No. 111-6230-D (14-1, et al.), June 7, 1944, p. 51.

costs was less than one-third of the expected or calculated increase, the difference being explained by "the utilization of improved machinery, better arrangement of processes and application of skilled labor, and the more adequate scheduling of the flow of production and better selection of raw materials."[48]

Greatest stress on factor *b*, better management and work procedures, is understandable in men's cotton clothing, where the possibilities of making savings through labor-reducing equipment are generally less than in metal-working plants, which gave the factor of additional labor-saving machinery the primary weight.[49] Also, as might be expected the firms with the highest rates of labor to total cost are the ones that place the most emphasis on new labor-saving machinery. Indeed, there is a notable inverse correlation between stress on that factor and the relative importance of labor in total costs. Exactly the reverse is true of the factor of increased sales efforts. Less stress is placed on sales efforts the larger is the percentage of labor in total costs. The implication is that large non-labor costs and increasing returns up to full capacity production bring to the fore the importance of keeping sales up when profits begin to be squeezed.

Economists brought up on the conventional theory may discount the stress placed by the business executives on increased sales efforts, considering it to be an irrational and uneconomic reaction to a wage increase. Previous data on the relationship between rates of output and unit variable costs indicate, however, that such stress on increased sales efforts may have some rationality. It may help to raise and retain output near capacity operations. Data at the beginning of this section indicate that expanding sales, output, and employment may, at times, be one of the results in firms most affected by wage increases. Business men are acutely aware of the fact that unit costs vary with output, that wage rates which seem extremely burdensome at half-capacity operations may not seem unduly high as full-capacity production is

[48] *Textile Industry, Findings and Opinion of the Administrator,* Wage and Hour Division, U.S. Dept. of Labor, September 29, 1939, p. 35.

[49] The possibilities of better management practices have frequently been emphasized in discussions of minimum-wage experience. See, for example, John F. Moloney, "Some Effects of the Federal Fair Labor Standards Act upon Southern Industry," *Southern Econ. Jour.*, Vol. IX (July, 1942), p. 22, and H. M. Douty, "Minimum Wage Regulation in the Seamless Hosiery Industry," *Southern Econ. Jour.*, Vol. VIII (October, 1941) p. 186.

In the seamless hosiery industry, with the introduction of 25-cent and 32½-cent minima in 1938 and 1940, respectively, employment declined more in the firms with average hourly earnings in the lowest wage classifications, largely due to increased use of labor-saving equipment in those firms (see Douty, *Southern Econ. Jour.*, Vol. VIII, pp. 183-89). However, there is no evidence that total output or sales of those low-wage firms, most affected by the wage minima, experienced any decline relative to the average for the industry.

approached. Unlike economists, business executives tend to think of costs and profits as dependent upon the rate of output, rather than the reverse (the rate of output as dependent upon the level of cost).

V

This paper raises grave doubts as to the validity of conventional marginal theory and the assumptions on which it rests. Admittedly the data used are imperfect and are based, for the most part, on opinions of business executives. Many of the replying executives are, however, heads of "small" businesses in highly competitive industries, so that they are good test cases for the theory. There may, of course, be questions concerning the representativeness of the samples, the completeness of the data, the content and character of the questions asked, etc. It may be argued, if somewhat unconvincingly, that business executives as a group do not learn from past experience and do not know their own businesses. Nevertheless, the answers of the replying executives are sufficiently consistent, firm by firm, and so overwhelmingly support certain reasonable conclusions that there can be little doubt about the correctness of the general results.

While awaiting the fruits of further investigation and analysis, the following tentative conclusions can be drawn from the data contained in this paper:

1. Market demand is far more important than wage rates in determining a firm's volume of employment.[50] Indeed, for employment determination, market demand is considered by business executives to be almost five times as important as all other factors combined,[51] and the wage level or changes in wages are considered to be no more important in determining a firm's employment than the level of non-labor costs and changes in such non-labor costs.

2. Most manufacturing concerns apparently are considered by their executives to be operating at decreasing unit variable costs all along the scale between 70 and 100 per cent of plant capacity. Consequently, it is seldom practical for a firm to curtail output (and, therefore, employment) simply in response to an increase in wage rates.

3. In modern manufacturing, a firm's level of costs per unit of product is influenced considerably by its scale of output; the reverse, as assumed by conventional marginalism, is not generally true.

[50] The 56 replying firms gave market demand an average rating of 87.5 compared with an average of 3.8 for the level of wages or changes therein, which, taken literally, would mean that market demand is more than 26 times as important as wage rates in determining the volume of employment of a firm.

[51] The relative importance of market demand was assessed by the executives of 56 firms at 82.5 compared with 17.5 for all other factors influencing a firm's employment. The ratio is 65 to 35 for the 28 firms rating two or more factors (see Table I).

4. Interregional firms, except in rare cases, do not adjust their use of labor and capital equipment to compensate for sectional differences in wage rates. For many manufacturing concerns it is not feasible, or would prove too costly, to shift the proportion of productive factors in response to current changes in wages, in the manner suggested by marginal analysis.

5. The practical problems involved in applying marginal analysis to the multi-process operations of a modern plant seem insuperable, and business excutives rightly consider marginalism impractical as an operating principle in such manufacturing establishments.

6. Of the three adjustments stressed by business executives to meet a rise in wages relative to those paid by competitors, two—better management practices and increased sales efforts—are neglected by conventional marginalism; whereas the adjustment stressed by marginalism—curtailment of output—is considered so unimportant and exceptional as to be mentioned in only one out of every 11 replies. Indeed, experience seems to indicate that, on an individual-firm basis, the adjustments considered important by the business executives may, at times, even result in larger firm employment at a higher wage level.

These tentative conclusions indicate a new direction for investigations of employment relationships and equilibrating adjustments, in individual firms.

A NOTE ON HICKS'S THEORY OF INVENTION

By Gordon F. Bloom*

In his well-known Chapter VI on "Distribution and Economic Progress" in *The Theory of Wages,*[1] Mr. J. R. Hicks elaborates a partial theory of invention which, though incidental to his theory of distribution,[2] nevertheless embodies the use of concepts which have so captured the economist's fancy that the theory of invention has achieved a certain fame of its own. Indeed, the terms "labor-saving" invention, "induced" invention, and "autonomous" invention have become stock in trade to most economists, so much so that they are frequently used without questioning the ultimate theory of technological progress upon which they rest. The Hicksian exposition is based in part upon a dichotomy between the induced invention and the autonomous invention; and in part upon a distinction between the labor-saving and the *very* labor-saving invention. It will be shown in the following discussion that the first classification is not all-inclusive and, in fact, omits, either through obscurity or error, what is a very common type of labor-saving invention. The second classification, while more proper, is mistaken in emphasis. Inductive investigation suggests that the invention whose introduction would have been profitable even if factor prices had not changed is not uncommon, as Hicks supposed, but on the contrary is a frequent occurrence in the favorable environment provided by American industrial enterprise.

Before exploring the intricacies of the theory of invention, a brief résumé of the Hicksian terminology may prove helpful.

Induced Invention[3]—an invention which is made as a result of a change in the relative prices of the factors.

* The writer, at present serving as a Lieutenant in the Navy, is indebted to Professors E. H. Chamberlin, Fritz Machlup and S. H. Slichter for their criticism of certain portions of this paper. Opinions or assertions contained herein are the writer's own and are not to be construed as official or reflecting the views of the Navy Department or the Naval Service at large.

[1] J. R. Hicks, *The Theory of Wages* (London, Macmillan, 1932), pp. 112-135.

[2] This paper is primarily concerned with the nature and propagation of invention, rather than with the broader aspects of distribution theory. Although Hicks has revised his earlier definition of elasticity of substitution, he has not, to the writer's knowledge, altered in print the basic propositions laid down in the *Theory of Wages* regarding the theory of invention. As a matter of fact, Hicks prefaced his remarks in his article on "Distribution and Economic Progress: A Revised Version" (*Rev. Econ. Stud.*, Vol. IV, No. 1 [Oct., 1936]), by stating: "I shall say nothing here on the subject of inventions, for I have nothing to add at present to what I have already written on that topic" (p. 1, note 1).

[3] Hicks, *The Theory of Wages*, p. 125.

Autonomous Invention[4]—all other inventions. These, on balance, are assumed to be neither predominantly labor-saving nor capital-saving.

Labor-Saving Invention[5]—an invention which increases the marginal product of capital relative to the marginal product of labor. *Ceteris paribus,* such inventions reduce labor's relative share in the National Dividend.

Very Labor-Saving Invention[6]—a labor saving invention which, if it had been known, would have paid even before prices changed. These inventions reduce labor's relative share and may reduce labor's absolute share if they are sufficiently labor-saving. Such inventions are assumed to be "not very common"[7] and are "the ***only kind*** which are really dangerous to the real income of labor."[8]

The Theory of the Induced Invention

Just how common Hicks considered the induced invention is not entirely clear from his exposition, because he makes no statement of the relative frequency of induced and autonomous inventions. The *impression conveyed,* however, is that the induced invention is a relatively common variety. It will be remembered that Hicks utilizes the concept of the induced invention to explain the relative predominance of the labor-saving invention in the stream of progress. Since autonomous inventions do not depend upon changes in factor prices, but rather upon scientific and technological developments, he assumes that over a long period they should have no particular bias, either in a labor-saving or capital-saving direction. Induced inventions, on the other hand, are assumed to be predominantly labor-saving, since the more rapid increase of capital relative to the labor force has, according to Hicks, given an impetus to the discovery of means to economize on the more expensive factor. Thus, when the two types are added together, the result is a distinct bias for labor-saving inventions—which is in conformity with observed fact. In other words, the predominance of the labor-saving invention is explained by Hicks as attributable to the phenomenon of the induced invention.[9]

[4] *Loc. cit.*

[5] Hicks, *op. cit.*, p. 121.

[6] *Ibid.*, p. 126.

[7] *Loc. cit.*

[8] *Loc. cit.* Italics mine.

[9] "*The real reason for the predominance of labour-saving inventions* is surely that which was hinted at in our discussion of substitution. A change in the relative prices of the factors of production is itself a spur to invention, and to invention of a particular kind—directed to economizing the use of a factor which has become relatively expensive." *Ibid.*, p. 124. Italics are mine.

Thus, in Hicks's world of invention, autonomous discoveries contribute to the total number of labor-saving inventions, but *the plurality of labor-saving over capital-saving is due to the induced invention.* Now it is quite evident to any student of technological change that the predominance of labor-saving inventions is considerable. Hicks himself concedes that examples of capital-saving inventions are not easy to find.[10] But if capital-saving inventions are comparatively few, then autonomous labor-saving inventions must also be relatively few in number, since, according to Hicks, autonomous inventions do not have any predominant bias. It follows therefore, from application of Hicks's premises, that *most* of the labor-saving inventions which do occur must be of the *induced* category. According to Hicks's definitions, the margin of the labor-saving over the capital-saving inventions is a measure of the frequency of the induced invention. The conclusion seems inescapable, therefore, that Hicks considered the induced invention to be the common type.

How common is the induced invention in actual fact? Ascertainment of the relative frequency of the induced invention through empirical investigation is admittedly a difficult task. Invention is a group process which extends over a long period of years. Conversations with one, two, or three men who have worked on a particular new product or process may fail to reveal the motives which induced the original research endeavor. Nevertheless, inductive study in this field is not without value, and therefore the writer presents the ideas gained from field investigation for what they are worth.

In a series of field surveys conducted in 1941, 1944, and 1945, the writer was afforded an unusual opportunity to discuss with employers the effect of wage increases upon the rate of technological progress. In 1941, the writer personally visited 53 companies in various parts of the country and discussed the effect of wage pressure and related problems with presidents, vice presidents, comptrollers, and plant managers.[11] Information received in this survey was supplemented by replies received to a questionnaire mailed in 1944 to substantially the same firms. In 1945, the writer conducted a survey of industrial research activity; in this investigation, replies to a questionnaire on research and invention were received from 50 companies and, in addition, the writer personally interviewed a number of directors of large industrial research laboratories. Through conversations with employers and research directors, and from replies to questionnaires, the writer was able to obtain a broad sample of entrepreneural opinion concerning

[10] *Loc. cit.*

[11] The writer is indebted to the Social Science Research Council for the grant of a Pre-Doctoral Field Fellowship which made possible this initial investigation.

the degree of sensitivity exhibited by technological discovery to changing factor prices.[12]

On the whole, most of the research men and employers consulted were of the opinion that relatively few inventions are made as a result of changes in wage rates relative to interest costs. That wage increases sometimes act as a kind of "detonator" which spurs the entrepreneur to increased activity cannot be denied, but this consideration appears to have more relevance with regard to the rate of introduction of *known* improvements than to the tempo of technological *discovery*.

This distinction is an important one. As a matter of fact, it is possible that Hicks was led to his erroneous conclusions regarding the frequency of induced invention by confusing the process of invention with mere adaptation to changed cost conditions within a given technique. When the relation of wage rates to interest rates changes, entrepreneurs find it profitable to alter methods of production, but this is not the same as a change in the volume of new discoveries. As Mrs. Robinson has pointedly remarked: "When we say that 'technical knowledge is given,' we do not mean that every entrepreneur has blueprints in his pigeon-holes of every type of machine which it would be profitable to use at each conceivable rate of interest. We merely mean that there is a certain body of technical knowledge which will lead to a certain adaptation of technique to circumstances."[13] Such adaptations are effected within a given production function, whereas invention alters the whole pattern of isoquants in individual firms.[14] There is little doubt that wage pressure stimulates the former type of change in operating technique, but inductive investigation suggests the significance of the stimulus is much less when applied to the process of *invention*.

However, while research executives minimize the importance of the induced invention, as defined by Hicks, they point out that the pressure of costs may "induce" invention in another, and broader, sense. As a matter of fact, *most labor-saving inventions* are "induced," but they are induced, not by *changes* in relative factor prices, but simply by the *continuing high price of labor*. If in the future the rate of population increase should exceed the rate of capital accumulation, this does not necessarily mean that there will be any lessening in the frequency of labor-saving inventions—though such a diminution would seem to be

[12] Considerations of space restrict this note to a criticism of Hicks's theory of invention. In a forthcoming article the writer will discuss more fully the results of these inductive studies as they apply to the relation of wage pressure, research, and the tempo of technological discovery.

[13] Joan Robinson, ***Essays in the Theory of Employment*** (London, Macmillan, 1937), pp. 134-35, note 1.

[14] Looked at another way, adaptations enter into the determination of the elasticity of substitution, whereas inventions alter it. See Robinson, ***loc cit.***

forecast, on these premises, by application of the Hicks theory with its emphasis on relative changes in factor prices. The fact remains that declining unit labor costs have not lessened management's interest in further reducing disbursements to labor. As long as labor cost remains a large item in the expense of modern business operation, labor-saving inventions will still predominate, whether wage rates rise relative to interest rates or not.[15] While labor-saving inventions induced by changes in relative factor prices do occur, inductive investigation suggests they are less common than Hicks supposed. It is probable that changes in relative factor prices would play a more dominant rôle in the motivation of invention if labor costs and capital costs bulked equally large in total costs, but since most production costs are labor costs,[16] invention is naturally biased in this direction regardless of fluctuations in the ratio of prices of the factors.

In view of the fact that payrolls constitute such a large element in business expense, it is understandable why economy in the use of labor is a major item in industry's program for technological improvement. Moreover, the labor-saving invention is probably *easier to discover* than the capital-saving improvement simply because the large proportion of labor costs and manual operations in individual manufacturing units naturally suggests more ways and means by which use of this factor can be economized. Modern industrial invention embodies continuous extension of mechanization, lightening the arduousness of work and progressively increasing the scope of automatism in operation. By their very nature, these characteristics of invention involve labor-saving. Most inventions are labor-saving, because invention represents the efforts of man to make life fuller and easier, and achievement of this goal typically requires the substitution of mechanical power for hand labor.

There is nothing very mysterious about this simple fact, yet in order to explain the predominance of labor-saving inventions, Hicks becomes involved in some highly questionable casuistry. Having postulated that the predominance of labor-saving inventions is attributable to the frequency of the induced invention, Hicks concludes that the remaining inventions—which he dubs "autonomous"—are not likely to

[15] The textile industry in the thirties was characterized by rapid technological change designed to save labor at the same time that the wage level was falling. The Hicksian concept of induced invention does not fit this situation very well, but it is clear that even at the lower wage level, labor was still a sufficiently large cost to induce management to discover means to economize in its use.

[16] In 1921, wages and salaries comprised 35.3 per cent of the value of production in manufacturing, whereas interest costs amounted to only 1.8 per cent; in 1939, the corresponding figures were 30.8 per cent and 0.8 per cent. See National Industrial Conference Board, *Economic Almanac for 1944-45*, p. 196.

have any predominant bias. This thesis, that autonomous inventions will over a long period be free of any predominant bias with respect to the particular factor saved, is not only unrealistic, but also is open to criticism on methodological grounds.

Bias in Autonomous Inventions

In the first place, there is the obvious criticism that inventions are not qualitatively equivalent; even if the *numbers* of capital-saving and labor-saving inventions were equal, their economic and technological significance would hardly be equivalent. One major labor-saving invention may produce more profound repercussions than 20 minor capital-saving improvements—and *vice versa.* If the number of autonomous inventions in each category happened to be the same, but the labor-saving group contained a mechanical cotton picker and an automatic rolling mill, would Hicks say that bias was involved, or not? It is apparent that Hicks's facile assumption that autonomous inventions have no predominant bias conceals a problem of evaluation which admits of no easy solution.

In the second place, assuming that a satisfactory basis for evaluating the bias of invention could be agreed upon, it is still questionable whether autonomous inventions—even as strictly defined by Hicks—would, on balance, exhibit no predominant bias. The problem is fundamentally one of the application of the laws of probability.[17] Given a certain number of inventions whose discovery is not motivated by changes in relative factor prices, it would be expected that, *ceteris paribus,* their distribution would conform to a normal frequency distribution. As Hicks phrases it, "In the absence of special knowledge we may reasonably assume a random dispersion."[18] Using two factors, labor and capital, Hicks concludes that over a long period, the distribution of inventions will be such that about half will fall in the labor-saving category and half in the capital-saving class. This deduction from the law of probability, however, is dependent upon the arbitrary classification of the factors of production which Hicks adopts as unit of measurement along his x-axis. With a different classification of factors, a different conclusion would result.

The process of invention can be studied in relation to various related economic phenomena, such as the costs reduced by technological progress, the factors saved, etc. Viewing the distribution of invention in relation to costs, for example, one might conclude that since, say, four-fifths of manufacturing expenses are labor costs and one-fifth capital costs, it would be expected that four-fifths of inventions

[17] The writer is indebted to Professor E. H. Chamberlin for elaboration of this point.

[18] J. R. Hicks, *The Theory of Wages,* p. 125. It may be questioned, however, whether inventions really are made "at random."

would tend to reduce labor costs while one-fifth would lower capital costs. Similarly, a number of hypothetical relations could be posited regarding the relation of inventions to the factors of production which they save. This is the viewpoint which Hicks adopts, but actually his particular relation is only one—and the narrowest at that—of a wide range which can be postulated. For example, if one adopts a four-fold classification of the factors, consisting of managerial labor, skilled labor, unskilled labor, and capital, then, *ceteris paribus,* on the basis of the laws of chance, it could be expected that one-fourth of inventions would fall in each of these categories so that labor, *in toto,* would embrace three-fourths of all inventions. Of course, this is an arbitrary conclusion resting upon what may seem to be a questionable classification of the factors, but it is no more arbitrary than Hicks's selection of two factors, which naturally gives him a 50-50 distribution. The mere fact that autonomous inventions are not induced by changes in relative factor prices does not necessarily free them from bias. That Hicks reaches this conclusion is attributable in part to his implicit assumption that individual inventions are of equal technologic and economic significance, and in part to his application of the laws of probability to an arbitrary classification of the factors of production.

A Reclassification of Inventions

It seems probable that both induced and autonomous inventions are biased in the labor-saving direction, the former because of the major importance of labor cost in business expense, the latter because of the fundamental nature of the process of invention.[19] Once this fact is realized, there is no need to retain Hicks's narrow concept of the induced invention, for its chief *raison d'être* was to explain the predominance of the labor-saving invention, and this is now seen to depend upon other circumstances. If for purposes of exposition, it is deemed desirable to distinguish those inventions which are "induced" by economic factors from those which are fundamentally attributable to scientific and technological developments, then Hicks's classification must be modified to take account of the labor-saving inventions which are induced, not by changes in relative factor prices, but by the fact that labor bulks so large as a cost in business operation.

The latter class of inventions, which, for convenience, may be termed "high cost induced inventions" is not specifically mentioned by Hicks in his discussion, although they are undoubtedly a very common type of discovery. It does not appear that Hicks intended to include them

[19] Mrs. Robinson also finds Hicks's proposition regarding the lack of bias in autonomous inventions "hard to accept" (*op. cit.*, p. 134, note 1) and points out that "the development of human methods of production, from the purely hand-to-mouth technique of the apes, has been mainly in the direction of increasing 'roundaboutness' " (loc. cit.).

under induced inventions, since he clearly states that induced inventions are discovered as a result of *changes* in relative factor prices. Nor is it evident that he intended to include them in the autonomous category. It is true that he defines induced invention and then places "all others" in the autonomous class; but later he specifically states that autonomous inventions ought not to be either predominantly labor-saving or capital-saving.[20] This would seem to exclude this type of invention, for, as has been indicated, it has a definite labor-saving bias. One is led to conclude, therefore, that Hicks simply overlooked this important type of invention.

Two ways suggest themselves of incorporating this kind of invention in Hicks's schema. On the one hand, inventions can be classified into those which are motivated by the desire to save labor and capital, and those which are not. The latter, which are attributable to scientific and technological developments, and to research in product improvement, may be called "autonomous," but they will still exhibit a labor-saving bias. The other group, the "induced" inventions, would include those discoveries which are induced by a change in relative factor prices, and those which are motivated by the desire to save a factor simply because it represents a large cost. The latter consideration is partly, although not entirely, independent of fluctuations in the price of the factor. If the price of labor were cut in half, it would be expected that both types of induced labor-saving inventions would be diminished in frequency; if, however, only a small change occurs in the price of labor relative to capital—which is the normal course of events—the number of induced labor-saving inventions as defined in the narrow Hicksian sense will be affected, but no material change is likely in the number of "high cost induced inventions."

Another possible method of classification involves retention of the narrow concept of the induced invention, as used by Hicks, and inclusion of the "high cost induced invention" in the autonomous group. Such a classification might be justified on the ground that the former group is sensitive to the relative rates of growth of labor and capital, whereas the latter is not particularly affected by this circumstance. This classification lends itself to exposition of Hicks's theory of economic progress. Thus, following Hicks, it can be said that increasing capital lowers the price of capital relative to labor and stimulates labor-saving inventions of the induced type. While this classification of invention simplifies theoretical analysis of the process by which capital is absorbed into production, it is doubtful if in reality there are a sufficient number of significant "induced" inventions to merit the importance of the rôle given them in this theory of technological progress.

[20] "There is no obvious reason why autonomous inventions should incline on balance, to one side more than to the other." Hicks, *op. cit.*, p. 125.

The Theory of the Very Labor-Saving Invention

The next point involves the concept of what, for convenience, may be called the *very* labor-saving invention, the invention which may reduce not only labor's relative share in the National Dividend, but its absolute share as well. It seems apparent from Hicks's comments regarding such innovations that he believed only induced inventions could be of this type. Thus, he makes the following categorical statement: ". . . neither a great activity in autonomous invention, nor a high elasticity of substitution, has *any* tendency to reduce the real income of labour. The *only* kind of invention which is likely to have this effect is that which . . . is inspired by a change in relative factor prices, but which would have been profitable to apply even before prices changed."[21] In another connection he declares: "Now *induced* inventions of this type . . . may reduce not only the relative share of labour, but also its absolute share."[22] Nowhere does he speak of autonomous inventions which may have this effect. In other words, Hicks assumes that only *induced* very labor-saving inventions pose any danger to labor's real income, and since this type of invention is not supposed to be very common,[23] it follows that labor has little to fear from technological progress *per se*.

This sanguine view does not seem warranted by the facts. In the first place, there is no reason why an invention which is *not* inspired by a change in relative factor prices cannot also reduce the absolute share of labor. From the standpoint of the dislocation produced, a labor-saving invention which was *not* induced by a change in relative factor prices, but which would have been profitable to adopt even at a lower level of wage rates, is just as dangerous as one which *was* induced by a change in relative factor prices, but which would have been profitable to adopt even in the absence of the relative increase in the price of labor. Among those new developments which Hicks includes in the autonomous category there may be a device, such as the automatic cotton picker,[24] whose discovery is not primarily attributable to changes in relative factor prices, but whose application would lead to

[21] *Ibid.*, p. 128. Italics mine.

[22] *Ibid.*, p. 126. Italics mine.

[23] *Loc. cit.*

[24] Available evidence suggests that invention of the mechanical cotton picker was motivated not by relative changes in factor prices, but simply by the desire to lighten the arduousness of a very laborious task. John Rust, who filed his first patent on the mechanical cotton picker seventeen years ago, worked with his brother on a cotton plantation and was compelled to devote long hours of back-breaking labor to picking cotton by hand. Being mechanically minded, he sought and discovered an easier way of doing the job. In this case, as with many great inventions, the desire to save labor and to make the job easier was the dominant motive unrelated to changes in factor prices. See Eliot Pratt, "Machine Age in Dixie," *Common Sense* (July 1945), pp. 13-15.

such a large displacement of labor with a relatively small additional outlay for capital that labor's real wage might suffer in consequence. In addition, the labor-saving invention which is induced not by changes in factor prices, but simply by the large cost of labor, may reduce labor's absolute share in the National Dividend, although it does not come under Hicks's definition of an induced invention. If an invention has very great labor-saving potentialities, but yields a comparatively small increment to the National Dividend, the consequent large reduction in labor's relative share may reduce its absolute share and its real wage. This maxim is true whether the invention was induced by a rise in wage levels, or by a new advance in metallurgy. Hicks assumes that the very labor-saving invention is relatively uncommon. The broadening of the concept of the very labor-saving invention suggests the possibility that occurrence of this type of improvement may be more frequent than Hicks had supposed.

Field investigation indicates that the invention which would have been profitable to adopt even at a lower level of wage rates is quite common. For example, in a survey conducted by the writer in 1944, business executives were asked to cite examples of recent important labor-saving improvements made in manufacturing technique. They were then asked whether it would have been profitable to make these improvements if wage rates had remained at 1939 levels. In the majority of cases, the answer was in the affirmative.[25] Apparently many recent technological changes come under the heading of what Hicks calls "methods, which if they had been known, would have paid even before prices changed."[26]

Recognition of the ubiquity of labor-saving inventions which would have paid even at lower levels of wage rates brings us to another shortcoming of Hicks's concept of the very labor-saving invention: namely, that it fails to distinguish clearly between infra-marginality and large labor-saving capacity. On the one hand, the very labor-saving invention is supposed to be one which would have been profitable to introduce even at a lower wage level. This simply means that it is an infra-marginal improvement, but if this is the case, clearly there is no reason why such improvements should be "not very common." On the contrary, it is the marginal improvement, like the marginal ele-

[25] The same considerations apply to the effect of changes in the rate of interest upon the rate of mechanization. As R. G. Hawtrey has pointed out, "In the great majority of cases the new instruments are not marginal, in the sense that they would have been installed at an earlier date had the rate of interest been lower. They usually embody improvements which may raise that yield substantially above the margin." R. G. Hawtrey, *Capital and Employment* (London, Longmans Green, 1937), p. 259.

[26] Hicks, *op. cit.*, p. 126.

ment in all other phases of economic life, which is the exception.[27] Probably only a relatively small proportion of inventions are induced by a change in the ratio of prices of the factors. Hicks was led to the erroneous conclusion that induced inventions were the dominant type, because he was seeking to explain the predominance of labor-saving inventions. As has been pointed out, this circumstance can be explained on other grounds fully consistent with the admission of the prevalence of infra-marginal improvements.

The second part of Hicks's definition of a very labor-saving invention relates to improvements which reduce the absolute marginal product of labor. Actually only a small proportion of infra-marginal improvements will have this effect. In other words, an invention can be such that its introduction would have been profitable at lower wage rates, without necessarily reducing the absolute marginal product of labor.[28] Whether or not a labor-saving invention will reduce the absolute marginal product of labor depends (1) upon the labor-saving capacity of the invention; (2) upon the size of the increment which it produces in total output; and (3) upon the ease with which the displaced labor can be reabsorbed in other parts of the economy. Because large labor-saving capacity is an indispensable condition of an invention which will reduce the marginal product of labor, such an invention will generally be infra-marginal, but not all infra-marginal inventions pose the same threat to labor.[29]

How common are inventions which lower labor's real wage? In classification and evaluation of the effect of invention, it is very important to be specific with regard to the time period which is being considered.[30] Hicks's definition of a labor-saving invention applies to the effect of invention upon the relative marginal product of labor,

[27] For example, most of the buyers and sellers in a market would be willing to make an exchange at other than the final market price. Similarly, most inventions are infra-marginal with regard to their cost-saving capacity.

[28] It is only fair to state that Hicks does not claim that *all* inventions which would have been profitable at a lower wage level will reduce the marginal product of labor. His discussion of the very labor-saving invention is ambiguous rather than wrong. His exact statement is as follows: "But it is certainly quite conceivable that a change in relative prices will stimulate invention to do more than this—to discover methods which, if they had been known, would have paid even before prices changed. Now induced inventions of this type (if they are labour-saving, as we may suppose generally to be the case) may reduce not only the relative share of labour, but also its absolute share." *Loc. cit.*

[29] Capital-saving inventions, which raise the marginal product of labor relative to the marginal product of capital, can also be infra-marginal.

[30] Oscar Lange recognizes the importance of the time element by incorporating it in his definitions. For example, he classifies an invention as "using" or "saving" a given factor *at the date t* according as it increases or diminishes the demand planned for that date. Thus the same invention can be "currently steel-using," "labor-saving after one year," etc. See O. Lange, *Price Flexibility and Employment* (Bloomington, Principia Press, 1944), p. 73. Also, O. Lange, "A Note on Innovations," *Rev. Econ. Stat.*, Vol. 25, No. 1 (Feb., 1943), pp. 19-25

the amounts of the factors being unchanged. The final result when the quantity of capital has had time to adjust to the changed yield may be quite different. Mrs. Robinson, for example, considering the case in which the amount of capital is adjusted to the new technique so that full equilibrium is attained with zero investment, finds that if invention is labor-saving in Hicks's sense, the relative shares will be unchanged if the elasticity of substitution is less than unity.[31] Similarly, in full equilibrium, even a *very* labor-saving invention may increase the marginal product of labor, if account is taken of the increase in capital per head required to restore equilibrium between the marginal efficiency of capital and the interest rate.

One may distinguish three stages in the process of innovation: the "gestation" period during which the new capital equipment is being built; the "operation" period in which the new equipment is introduced and the displaced labor is absorbed elsewhere in the economy;[32] and the stage of full equilibrium in which capital accumulation brings the marginal productivity of capital back to its former level. The first stage will almost always raise the absolute marginal productivity of labor, because new investment increases the demand for its services. The second stage may witness a decline in the real wage of labor if the improvement makes only a small addition to the National Dividend, but by virtue of its large labor-saving capacity drastically reduces labor's relative share in the Dividend. The third stage will almost always witness a rise in the real wage of labor, even in those cases where the very labor-saving invention has reduced labor's absolute share at the second stage. The greater the decline in the relative marginal product of labor, the greater the increase in the relative share of capital in the National Dividend. Consequently, the more labor-saving an invention, the more favorable it is to the yield of capital; and since a rise in the yield of capital will make investment more attractive, ultimately the demand for labor[33]—and therefore its marginal

[31] Joan Robinson, "The Classification of Inventions," *Rev. Econ. Stud.*, Vol. 5, No. 2 (Feb., 1938), p. 139.

[32] This classification follows Lange, who distinguishes two periods: a factor-using period of "gestation" and an output-increasing period of "operation" of the innovation. (See *Price Flexibility and Employment*, p. 74.) However, Lange appears to give inadequate attention to the third period, in which an increase in capital per head is necessary to restore equilibrium.

[33] Mrs. Robinson is pessimistic concerning the long-run repercussions of invention upon employment. Thus, she states, "There appears to be, from the long-period point of view, very strong grounds for the popular opinion that inventions tend to reduce employment." (*Essays in the Theory of Employment*, p. 135.) This conclusion, however, rests upon a questionable assumption; namely, that if labor's relative share in the national dividend is reduced, the level of equilibrium output will necessarily diminish, because of the increase in thriftiness

product—will be increased by the additional capital accumulation which can be traced to the original invention.[34]

This is all very well, the average labor leader will say, if one is willing to wait for the long run. The fact remains, however, that the high labor-saving capacity of inventions in recent years has considerably aggravated the problem of technological unemployment, and posed a real threat to labor's job opportunities in particular industries. Recognition of this fact is in nowise inconsistent with the contention that labor benefits from invention, both in the short period and in the long run. For example, it can not be denied that without the investment in new labor-saving technology which took place during the thirties, total employment would have been much lower than it actually was; for in the short period, the construction of labor-saving apparatus almost always creates a demand for more labor than it displaces.[35] The important point to recognize, however, is that very labor-saving inventions do not necessarily require any more capital investment than less labor-saving improvements. The labor-saving capacity of an invention is dependent upon the technical ingenuity involved rather than the capital investment required.[36]

Consequently, it is possible for the average labor-saving capacity of invention to increase without this change being reflected in an increase in the level of capital expenditures. Thus, if such a change occurs—as some labor leaders maintain has occurred over the last two decades—there need be no increase in employment opportunities in the "gestation" period, but the unemployment problems of the "operation" period will be considerably aggravated. There will be some inventions which are very labor-saving and which actually tend to reduce the real wage of labor as a whole. But the great majority of inframarginal labor-saving inventions—if they are endowed with a high labor-saving capacity—will simply produce a high rate of what economists call "frictional employment." If most labor-saving inventions were induced marginal improvements, as Hick's analysis suggests, frictional unemployment would not create much of a problem, for the labor displaced by marginal inventions is small in amount and there-

[34] Or as Hicks points out, even if economic progress does cause a decline in the equilibrium level of real wages this would only be temporary: ". . . enlarged profits would mean new saving; increased capital would raise the level of real wages again." (*Op. cit.*, p. 130.)

[35] The effect of invention upon employment in the short period will depend upon the extent to which the funds expended represent new investment rather than re-investment of depreciation allowances of old plant.

[36] An electric eye apparatus which makes possible almost 100 per cent automatic operation may require only a small capital outlay, whereas an improvement which displaces comparatively few men may entail considerable investment.

fore the difficulties of transfer and reabsorption are minimized. If, however, it is recognized that most inventions are infra-marginal and that the average labor-displacing potential is high, then the frictional unemployment which results takes on new significance. When five hundred to a thousand persons are thrown out of work in single enterprises[37] by an individual invention, such as the strip mill, and when the ages and skills of these men are such that they cannot easily be reëmployed elsewhere, it seems more realistic to drop the term "frictional" and recognize frankly that this is a problem of technological unemployment attributable to the high labor-saving capacity of recent technical changes.

This does not mean that labor should oppose invention. Such a policy would be short-sighted; for, despite the existence of technological unemployment, the level of employment would probably have been lower had it not been for the added investment in new technology. Labor has a real interest in promoting technological progress, because an active technology is needed to provide outlets for new investment, and adequate new investment is labor's assurance of continued employment and rising real income. The remedy lies in public recognition of the fact that labor's indictment of machine displacement has not been entirely unfounded; that many new inventions are very labor-saving; and that if it is public policy to encourage technological progress, provision should be made to alleviate the distress caused among those labor groups which are most directly affected by technological change.

[37] See H. J. Ruttenberg, "The Big Morgue," *Survey Graphic*, Vol. 28, (Apr., 1939), pp. 266-69.

FAMILY SIZE AND RESIDENTIAL CONSTRUCTION

By Eric Schiff*

The Problem

Whether private investment outlets in the industrial societies of the post-war era will be sufficiently large and numerous to absorb the volume of money saving is still a hotly debated question. At the same time there is fairly general agreement that the volume of aggregate effective money demand for consumers' durable goods will play a strategic part in this problem. This volume is in turn determined by various factors, among which two are by far the most important. One is the number of consumer units (single persons or families); the other is the amount of income which each consumer unit is able and willing to spend for these goods. In recent economic literature there has been a tendency to assert or to imply that, in the long run, variations in aggregate effective demand for consumers' durables are predominantly caused by what we may call the quantity factor—the growth or decline, or the change in the rate of growth or decline, of the number of consuming units—with the income factor playing only a relatively minor part.[1] Quite often this view, combined with the observation that we are living in a period of declining population growth, has led to pessimistic predictions as to the adequacy of investment outlets in the future.

Two questions must be distinguished here. One of them has to do with the *final* results of a declining rate of population growth, *i.e.*, the eventual relative, or even absolute, decline in the number of income-earning units (single adult persons of income-earning age; families the heads of which are potential income earners). This final phase is hardly the problematical one, as far as investment and employment opportunities are concerned. For in this phase the decline in investment and employment opportunities incident to the reduction in consumer demand will *ex hypothesi* be neutralized by the decline in the number of people for whom employment and earning opportunities have to be provided. To the extent that the decrease in the number of investment and employment opportunities is accompanied by a corresponding decrease in the number of competitors for such opportunities, it is difficult to see why the earning chances of the remaining competitors

* The author is research economist with the Machinery and Allied Products Institute, Washington, D.C. The views expressed are personal views only.

[1] See the quotations below, pp. 98-99.

should be adversely affected. This is true at least so long as the number of persons of income-producing and income-earning age does not sink below a Malthusian optimum.

It is in the phase of transition that a real problem may arise. When a decline in the rate of human reproduction sets in, it takes some 15 to 20 years for the above-mentioned long-run effects to materialize. In the meantime, while the number of adults looking for employment opportunities is still undiminished, the reduction in the average size of families brings about certain shifts in the spending and saving habits of the nation. And *if* these shifts mean a net reduction in the demand for capital investment, real difficulties might turn up. During this period, a reduction in investment demand may in fact mean reduced per capita chances of employment and earning for those competing for such chances. The present essay is concerned with the economics of this transitional phase.[2]

The question of whether the shifts in consumer spending that are associated with a decline in family size are bound to result in a net reduction in investment opportunities is a special aspect of the general question of the relative importance of what we have called the quantity factor as compared with the income factor. Most discussion of this subject by economists has so far been highly tentative, but within the limits of this type of reasoning the quantity factor has usually been given greater weight. In this respect, even outspoken opponents of the mature economy theory have been inclined to concede things that are, to say the least, badly in need of qualification. Thus, Wilford T. King admitted:[3] "However, it is, of course, true that the slackening rate of population growth is likely to lessen building volume." Volume in the sense of "number of dwelling units," maybe; but in the question of outlets for capital, the thing of primary importance is the effect of housing demand upon the investment value, rather than upon the physical volume, of residential building. Harold L. Reed, answering King, took the opposite view, but even his statement was in general terms, without any attempt at statistical verification:[4] "In the promis-

[2] The United States, taking account of its general population trend and disregarding possible repercussions of the war, is in such a period of transition. The number of families is not yet declining; in fact, it is expected to increase for some time to come. *Cf.* Lowell T. Chawner, *Residential Building*, National Resources Committee Housing Monog. Ser. No. 1, p. 17. But the average size of families in already decreasing. In 1940 the average size of the American family was 3.78 persons, as compared with 4.10 persons in 1930. ("Families" as the term is here used include single individuals forming a household unit.) *Cf. Housing*, Vol. II, Pt. 1, 16th Census 1940, p. 3.

[3] W. T. King, "Are We Suffering from Economic Maturity?" *Jour. Pol. Econ.*, Vol. 47, No. 5 (Oct., 1939), p. 621.

[4] H. L. Reed, "Economists on Industrial Stagnation," *Jour. Pol. Econ.*, Vol. 48, No. 2 (April, 1940), p. 247.

ing field of cheap residence construction, a leading obstacle to revival is the difficulty workers with large families encounter in saving the margins for down payment necessary to start construction on a scale that would provide an extensive outlet for the saving of others. Shelter provision seems to depend much more on well-being than upon the number of people." A reply to this by Alvin H. Hansen again stressed the predominance of the quantity factor, but was couched in equally tentative and non-quantitative language:[5] "It appears highly probable, as Professor Reed states, that the increased savings which almost certainly would follow from smaller families—a point which, however, is denied by many—would probably encourage more home ownership, and since resident ownership means usually better homes, this would involve a larger per capita investment in housing. While I think this point is sound, I question very much that there is any high probability that the resulting increase in per capita housing investment can offset the decline in total housing incident to a stabilization of population growth." W. B. Reddaway, discussing in terms of general probabilities both the optimist's and the pessimist's arguments as to the effects of a decline in family size upon capital outlay, finally decides to endorse the pessimistic view without, however, attempting any quantitative analysis.[6]

The purpose of this article is to contribute such a quantitative analysis. An attempt will be made to analyze the net influence of family size on housing expenditure, the income factor being held constant. This problem is, of course, only a segment of the general problem of quantity *versus* income as determinants of effective consumer demand. But it is an important segment. In all modern business economies, residential construction is one of the most important outlets for capital seeking investment opportunities. In this country, residential building during the years 1919-1935 absorbed annually from 9.7 per cent to 31.5 per cent of total gross capital formation (excluding repairs and maintenance and consumers' movable durable commodities). The average percentage for the period 1918-1933 was 20.5 per cent.[7] No lengthy explanation is needed as to why this industry has nearly always held a key position in the problem of maintaining a proper balance between savings and investment. Not only is much capital required to finance what may be regarded as the normal number

[5] A. H. Hansen, "Extensive Expansion and Population Growth," *Jour. Pol. Econ.*, Vol. 48, No. 4 (Aug., 1940), p. 583.

[6] W. B. Reddaway, *The Economics of a Declining Population* (New York, 1939), esp. Chap. IV on "Population and Capital Outlay."

[7] S. Kuznets, *Commodity Flow and Capital Formation*, Vol. I (New York, Nat. Bur. of Econ. Research, 1938), pp. 468, 489. Computations based on 1929 prices.

of projects in residential building; the minimum amount of capital without which no single project, however small, can be started, is also relatively high in this field. At the same time, most of the funds invested in residential construction must be provided by "outside" savings; there is here only very limited scope for self-financing. Moreover, the average as well as the minimum labor input required per project is also larger, relatively, than in most other industries. There is every likelihood that in the coming peacetime economy private residential construction in this country will maintain its key position as an outlet for the investment of savings.[8]

In residential building the family is the consumer unit for which the bulk of the supply is being provided. Aggregate effective demand for housing is mainly determined, first, by the number of families to be housed and, second, by the housing expenditure of each family. The principal factors determining this expenditure are (1) the income of the family; (2) the size of the family; (3) the age composition of the family; and (4) the occupation of the head of the family and—to a lesser extent—of other income earners in the family.

In quantitative importance factors (1) and (2), which we are here planning to analyze, undoubtedly rank high above factors (3) and (4). The question we are primarily driving at is this: Other things being

[8] After the last war, private residential building in some European countries lost this key position, and in fact remained paralyzed for quite some time, as a result of rigid enforcement of rent restrictions during a period in which the prices of practically all other commodities and services were skyrocketing. "Real" rents were deeply below the equilibrium level. At the same time national wage and salary systems had become geared to family budgets which, while inflated by the rise of other costs of living, were far below what they would have been if housing expenditure, too, had been adjusted to the currency depreciation. Hence, in order to avoid violent upheavals in wages and family budgets during the first post-war years, the process of raising and finally abolishing the rent ceilings had to be very gradual. Naturally, this protracted period of rents being kept at under-equilibrium levels was a period of almost complete stagnation for private residential building. The rent restrictions as adopted by most of these countries did not, it is true, apply to newly erected buildings. But with the wage and salary system geared to a consumer budget in which rent expenditure was only a fraction of its equilibrium value, tenants could not be expected, even if otherwise they had every incentive to do so, to give up their rent-restricted apartments and to move into new dwellings where they would have had to pay equilibrium rents. New houses built as self-reproducing investment assets would have remained vacant. So long as the rent ceilings remained in force, new dwelling units could be provided only to the extent governmental agencies were able and willing to build houses out of tax receipts, writing off the investment value immediately after the construction was completed. Several local governments have in fact made great efforts in this direction—the housing program of the Municipality of Vienna was perhaps the one that received widest attention—but these efforts could nowhere be pushed to the point where the total demand for new housing would have been satisfied. In the United States, the chances are that the post-war era will be characterized by maintenance, in general, of the traditional system under which the full "real" cost value of the dwelling space including interest and some net profit is normally paid for by those using the dwellings, while public subsidies are being granted only to bring housing facilities of minimum standard of decency within the reach of the lowest income groups.

equal, do large families spend more on housing than do small ones, or do they spend less? Hence, is residential construction as an investment outlet favorably or unfavorably affected by the trend toward smaller families which has been apparent for some time, and for whose early reversal as a general tendency we do not at present have any indication?

No statistical analysis is needed to show that the influence of an increase in family size upon housing expenditure is mainly determined by two forces which tend to counteract each other. On one hand, an increase in the size of the family will generally, though perhaps not in each particular case, increase the desire for space. On the other hand, any increase in the number of non-earning family members which is not accompanied by a rise in family income means a financial strain which will in many cases make it impossible to expand the living space of the family to the extent that would be desirable. This is mainly because other expenditure items, especially food and clothing, have to be increased in the first place when the family grows. Which of the two forces is stronger, and whether their combined influence results in a positive or in a negative net effect of the family size on the size of the dwelling occupied, or on the dollar value of the dwelling the occupying family is willing to pay for, are questions which can only be answered by statistical analysis. *A priori,* the net effect may be either way.

In respect of the physical size of the dwelling, existing statistical evidence gives a fairly clear picture. In given income groups, the number of rooms generally increases with the number of persons making up the household unit.[9] This tendency is largely independent of regional location and of the income group analyzed. At the same time, again independent of regional or income size differences as between groups, the number of rooms does not rise in proportion to the number of occupants; in other words, the average number of rooms per person decreases with increasing family size. The strain under which the budget of large families has to be operated forces them to crowd into dwelling spaces which are relatively smaller, although, in the majority of cases, absolutely larger.

In respect of housing as an investment outlet, the thing that matters is not, primarily, the physical volume, but the money value of the dwelling demanded. Since "shelter" is not a standardized commodity like cement, or a standardized service like street car transportation,

[9] For a statistical verification it is sufficient to glance at the extensive Table 3 "Living Quarters Occupied" in *Family Expenditures in Selected Cities, 1935-1936,* Vol. I, *Housing* (Study of Consumer Purchases, Urban Technical Series, U.S. Dept. of Lab., Bull. No. 648 [Washington 1941]), pp. 132-177. *Cf.* also *Family Expenditure in Chicago, 1935-36,* Bull. No. 642/II (Washington, 1939), p. 42.

the relationship between family size and housing value may well follow a pattern different from that characterizing the relationship between family size and dwelling space. Results of earlier statistical studies on this second question have remained largely inconclusive. Yet, before reëxamining the matter, it is in order briefly to review the attempts that have so far been made.

Earlier Statistical Studies

(1) Tables contained in various volumes of the Study of Consumer Purchases present data on the housing expenditure in 1935-1936 of families of various size and age types.[10] In each of these volumes the evidence as suggested by the tables is discussed in the text, and in each of them the general verdict is that the variations of housing expenditure by family type are partly too insignificant and partly too irregular to indicate a consistent pattern. This verdict is confirmed by the significance tests worked out in the appendices to each volume; nearly all of the tests failed to show that the variations possessed statistical significance.[11] As to the conclusions to be drawn from this negative result, the study says: "It may be that expenditures for housing do not vary more markedly with family composition because differences in type of dwelling and residential section selected by families of varying size tend to offset variations in the amount of space required."[12]

(2) In a study published in 1940, Lorimer and Roback[13] presented an analysis of expenditures for different consumption categories by

[10] U.S. Dept. of Labor, Bull. 642/II, for Chicago; 643/II for New York City; 644/II for 9 East Central Cities; 645/II for 7 New England Cities; 646/II for 6 Urban Communities, West Central Rocky Mountain; 647/II for Selected South Eastern Cities. It should be noted that the breakdown by family types as given in the Consumer Purchases Study is only in part a breakdown by family size; the age of family members comes in, too. The number of persons is 2 in Type I, 3 in Type II, 4 in Type III, 3 or 4 in Type IV, 5 or 6 in Types V and VI, 7 or 8 in Type VII.

[11] Milton Friedman, "The Use of Ranks to Avoid the Assumption of Normality Implicit in the Analysis of Variance," *Jour. Am. Stat. Assoc.*, Vol. 32 (Dec., 1937), pp. 683 *ff.*, tested the statistical significance of expenditure patterns by income size (range of $250) on one hand, and by family size (5 types) on the other, for 246 Minneapolis and St. Paul families of wage earners and lower salaried clerical workers, 1935-1936. The analysis was based on raw material compiled by the staff conducting the Consumer Purchases Study. Housing expenditure was one of the expenditure categories investigated. In the testing, both the analysis of variance and Friedman's method of rank sums were used. The coefficients obtained by either method in respect of the influence of family size on housing expenditure were not even "significant," *i.e.*, they were smaller than the values which would be exceeded by chance once in twenty times.

[12] *Family Expenditures in Nine Cities of the East Central Region 1935-1936*, Bull. 644/II, p. 43.

[13] Frank Lorimer and Herbert Roback, "Economics of Family Relative to Number of Children," *The Milbank Memorial Fund Quarterly*, Vol. XVIII (April, 1940), pp. 114-36. See also Lorimer *et al.*, *Foundations of American Population Policy* (New York and London, 1940).

native non-relief white families of various size types in three areas (Chicago; three middle-sized cities;[14] a sample of farm families in Pennsylvania and Ohio). This analysis, too, is based on material collected for the Consumer Purchases Study. The size classification is by number of children under sixteen years. Again, the figures for housing expenditure fail to reveal any significant variation with family size; the significance test applied by the authors yielded coefficients far below the values required to establish significance even on the $P = 0.05$ level. In respect of the quantitative conclusions suggested by the findings, the authors have this to say: "Apparently the increased housing needs of families with children are just about balanced by increased financial strain, so that proportional expenditure for housing remains fairly constant."[15] In view of the small size of the samples, however, the lack of significance of the variations obtained can hardly mean more than that the conclusion "just about balanced" is not ruled out. To *establish* this conclusion, a broader sampling basis would obviously be required.

(3) Nor did a more recent attempt by R. G. D. Allen to trace family-type patterns of consumer expenditure yield definite results for our question.[16] This is due, in part, to the inadequacy of the Consumer Purchases Study sampling basis, on which even this study relied, and in part to the fact that the family types analyzed are not pure size classes. Moreover, the income brackets for which the author tries to establish expenditure patterns are wider than seems desirable.

(4) In May, 1942, the Bureau of Home Economics of the Department of Agriculture published an analysis, also based on schedules used in the Consumer Purchases Study, of Family Spending and Saving as Related to Age of Wife and Age and Number of Children.[17] Three regional units (North Central Small Cities, Middle Atlantic and North Central Villages, Middle Atlantic and North Central Farms) were covered. The value of the results is limited, first, by the fact that the influence of the size factor has been segregated only in part from that of the age factor. Second, so far as the isolated influence of the size factor is discernible, it is only in the \$500-\$999 income class that something like a consistent pattern shows, and even here the comment of the authors is rather tentative.[18]

[14] Muncie, Ind.; New Castle, Pa.; Springfield, Ill.

[15] Lorimer and Roback, *op. cit.*, p. 118.

[16] R. G. D. Allen, "Expenditure Patterns of Families of Different Types," in *Studies in Mathematical Economics and Econometrics*, (*In Memoriam* Henry Schultz), ed. Lange, McIntyre, and Yntema [Chicago, 1942]), p. 190 *ff*.

[17] U. S. Dept. of Agric., misc. pub. no. 489.

[18] "Sixty-four per cent of those in the income class \$500-\$999 lived in 6-room or larger dwellings. But the average value of their housing for the year, \$124, was below that of

(5) In the Consumer Expenditure volumes published by the National Resources Committee, an attempt was made to extend by a weighting procedure the sample data collected for the Consumer Purchasers Study, and thus to obtain estimates of expenditure patterns for all consumer units in the United States in 1935-1936.[19] The Family Expenditures volume contains tables which give, for each of four specific income classes, figures of average housing expenditures per family by family types of three sizes (2 persons; 3-6 persons; 7 or more persons).[20] For each of the three broad categories Farm Families, Rural Nonfarm Families, Urban Families, and for the grand total, a separate table was constructed. In the various family categories and income groups with only few exceptions, average annual per family expenditure on housing as recorded in the tables declines with rising family size. The consistence of the pattern is all the more remarkable as the objection of smallness of the sampling basis cannot be raised here. Yet, for two reasons it may be better not to place too much reliance on these results. For one thing, the breakdown by family size groups is fairly rough. For another thing, the statistical methods by which the National Resources Committee arrived at its estimates of nation-wide income and expenditure patterns have been criticized.[21]

The Housing Census of 1940

Late in 1943 a statistical source became available which for the first time offers a chance to obtain a more or less definite answer to our problem. That is the volume ***Population and Housing, Families, Income and Rent,*** which forms part of the Sixteenth Census of the United States, 1940. Table 3 of this volume presents, for four regions adding up to total continental United States, a detailed series of frequency distributions of families by income classes and by housing expenditures

all but three of the 15 other family composition groups. Perhaps the large families found the space they needed in old houses, lacking some of the modern conveniences and comforts and, therefore, having a somewhat lower rental value than the smaller, more modern homes. Or they may have accepted less desirable locations with lower rents per room." *Ibid.*, p. 27. The source material presented in the extensive tables appended to the study could be retabulated so as to make possible the computation of totals and averages classified, for specific income brackets, by family size alone. Four size classes according to number of children under 16 could be obtained in this way. However, the value of the results would again be open to question because of the small size of the total sample (4921 families in all). The work of retabulation and computation would therefore be justified only if no better sources were available.

[19] *Consumer Expenditures in the United States* (Washington, 1939). *Family Expenditures in the United States* (Washington, 1941).

[20] *Family Expenditures in the U.S.*, Tables 304, 312, 320, 328.

[21] *Cf.* Rufus S. Tucker, "Estimates of Savings of American Families," *Rev. Econ. Stat.*, Vol. XXIV, No. 1 (Feb., 1942), p. 9 *ff.*; "Distribution of Income in 1935-36," *Jour. Am. Stat. Assoc.*, Vol. 37, No. 220 (Dec., 1942), pp. 489 *ff.*

within each specific income class. The tabulation covers all families exclusively dependent on wage or salary income. The analysis units—the four regions—are subdivided into "urban" and "rural nonfarm"; for each of these subunits two tables, one covering owner families, the other covering tenant families, have been constructed. In each of these 16 subgroups, the distribution of the number of families by income classes, and within each income class by actual or imputed monthly rent for housing, is given both for all families and for families comprising specified numbers of persons. This last-named breakdown shows 7 family size classes (number of persons in family: 1, 2, 3, 4, 5, 6, 7 or more).

Thanks to this triple cross tabulation of frequency distributions of families by family sizes, by income brackets, and by rent classes, it is possible to compute the median monthly rents[22] for different family size types within each of 5 income classes in each of 16 analysis units. The behavior of the median housing expenditure, or housing value, with varying size of family may thus be examined all the way through from the smallest to the largest size type for each of 80 analysis groups. Each of these groups is independent of all others, and their sum represents, regionally, the total and, structurally, a very large cross section of the nation. The following table shows the coverage of the material which will be analyzed:

Families of Two or More Persons

	Owner Families	*Tenant Families*	*All Families*
(1) All families, 1940 Census	13,871,980	17,670,140	31,542,120
(2) Urban and rural nonfarm families	10,334,700	14,513,840	24,848.540
(3) Urban and rural nonfarm families exclusively dependent on wages and salaries	4,897,460	9,471,660	14,369.120
(4) Of which analyzed here	3,888,640	7,721,940	11,610,580
(5) (4) in Per cent of (1)	28.03	43.70	36.81
(6) (4) in Per cent of (2)	37.63	53.20	46.73
(7) (4) in Per cent of (3)	79.40	81.53	80.80

With a coverage such as this, there is no danger that quantitative conclusions from the results will have to be confined to a *non liquet*. If no consistent and statistically significant pattern is obtained, the "just about balanced" conclusion will be valid; in the opposite case, quantitative inferences from the properties of the pattern will be possible.

The results of the computations may be seen from Tables I and II

[22] Computation of average rents is not possible, as the highest rent class invariably is an open-end class (*e.g.*, "$40 or more").

in the Appendix (on pages 111 and 112). Before discussing the results, a few remarks are in order about certain properties of the basic material.

In Tables I and II only families in the sense of household units comprising at least two persons are included. One-person families[23] have been disregarded. In the size classification of the Census only the head of the family and persons related to the head by blood, marriage or adoption, are counted, whereas lodgers, resident servants, guests, and foster children or wards are omitted. It is unlikely that inclusion of these latter groups would result in a substantially different frequency distribution. The Census classification of family sizes by "number of persons in the family" is by no means identical with a classification by number of children, still less with a classification by number of children under income earning age, which in some respects would be the best classification for our purpose. The degree of divergence increases with the family size, as will be seen from the following table:

Families, Comprising Specified Numbers of Persons, with Married Male Head and Wife Present (Total U. S.)[a]

	Number of Persons		
	3	4	5
(1) All Families	6,450,080	5,389,100	3,301,860
(2) Families where all members other than head and wife are children under 18	4,174,660	3,094,660	1,523,020
(3) (2) in Per cent of (1)	64.7	57.4	46.1

[a] Computed from the 16th Census volume *Population, Families,-Types of Families, Regions and Cities of 1,000,000 or More* (Washington, 1943), Table 3.

Hence, patterns of housing values by family sizes as derived from Census statistics may only with some caution be used for conclusions as to the influence of the rate of population growth upon housing demand.[24] It is unlikely, however, that the possible distortion involved is important.

[23] In the Census, a person living alone is counted as a one-person private family.

[24] For "Families, Male Head, Married, Wife Present" the 1940 Census indeed presents frequency distributions by different numbers of children under 21 analogous to those presented for "All Families" by different numbers of persons in family. Hence it would have been possible to compute the median rents for the first-named size classification just as well as for the latter. This idea was, however, rejected for various reasons. The group for which the size classification by number of children is given represents a far smaller section of all United States families than does the group which was subdivided by number of persons. In the former group, the first class ("No Children Under 21") comprises both one-person families and childless couples, without any possibility of segregation. The breakdown by children under 21 is far less complete (no children; 1 child, 2 children; 3 or more children) than the breakdown by numbers of persons. The maximum age of children included being 21, even the breakdown by "children" would not eliminate with sufficient reliability semi-independent income-earning family members.

The rent classes from which the medians were computed are based on the reported contract rent of tenant-occupied dwelling units, and the estimated rental value of owner-occupied dwelling units.[25] A source of bias which cannot be removed lies in the fact that the contractual rent sometimes includes and sometimes excludes compensation for services other than the shelter itself (furnishings, fuel, light, refrigeration). However, as the shelter rent proper is always by far the largest item in the contractual rent sum, it is unlikely that a computation based on this item alone would have yielded a substantially different distribution pattern.

As for the income classes, the open-end Census class "$5,000 or more," and the lowest Census class "$1.00 to $499," have been omitted. The $1.00 to $499 class presumably includes families whose rent payments are subsidized by local housing authorities; to the extent that this is true the rents recorded would not be indicative of effective demand for housing as displayed by self-supporting consumer units. When these two classes are omitted, there remain the five classes tabulated. Their ranges ($500 in the first three classes, $1,000 in the fourth, $2,000 in the fifth) are the narrowest ones available from the statistics. Within each given class, the possibility of an unequal distribution of income sizes by family sizes cannot be excluded. There is reason to assume some such inequality since, presumably, the larger family size groups are more heavily weighted with incomes near the upper end of the class range. It seems probable that the number of members other than the family head who contribute to the family income is larger in the large-family size groups than in the small-family groups. When interpreting the rent expenditure patterns obtained, the probability of family income within given class intervals being distributed somewhat unequally among the family size groups must be borne in mind. We shall see, however, that in our particular case this probability actually increases the statistical reliability of the findings.

With these considerations in mind, we may now turn to the results. They indicate, with a degree of uniformity which is unusual and indeed striking, that the value of the housing accommodation which a family is able and willing to pay for is the smaller the greater the number of family members. As will be seen from Tables I and II, this pattern is independent of regions, tenure, and income brackets. Ranking the rent medians in each of the 80 rows in our tables from left to right, *i.e.*, in rising order of family size types, we find 48 rows, or 60 per cent of the total, where the ranks of the rents are declining all the way from the smallest to the largest family size (rank order of family sizes: 1,

[25] For dwelling units for which no money rent was paid, the estimated monthly rental value based on the monthly rental paid for similar dwelling units in the neighborhood was reported. *Population and Housing*, p. 2.

2, 3, 4, 5, 6; rank order of median rents: 6, 5, 4, 3, 2, 1). Even in the remaining rows, the number of "exceptions" is very moderate; in relation to the total number of pairs of observations, it is exceedingly small.[26] In fact, of 400 pairs of adjacent family sizes, 358, or 89.50 per cent, are cases where the median rent is smaller for the larger family size and larger for the smaller size.

Examining family sizes differing from each other by 2 persons, 313 out of a total of 320 size pairs, or 97.81 per cent, are found to be cases where the correlation with the corresponding pairs of rent medians is inverse. For family size pairs differing by 3 persons, the number of cases showing inverse correlation with the corresponding pairs of rent medians is 239 out of 240, or 99.58 per cent. In the owner group the percentage of "exceptions" is even smaller than in the tenant group (10.5 per cent as against 12.5 per cent of the total, for 1-person differences in family size). The rate of decrease in housing value with rising family size is also in most cases greater for owner families than for tenant families.

It is obvious that the probability, mentioned above, of the large-size family groups being relatively overweighted with incomes near the upper ends of the income class ranges makes the negative associations which we obtained even more convincing. Had we obtained positive correlations between size groups and rent medians, it could have been argued that the result was partially due to a relative preponderance, in the large-size groups, of incomes near the upper class limits. Hence, such positive associations could have been interpreted only with caution as indications of an expenditure pattern determined by family size alone. At the same time, the factor just discussed reinforces the validity of this interpretation in respect of negative correlations such as have actually been obtained throughout. It is, in fact, quite remarkable that the pattern is not more blurred in the two highest income brackets with their wide ranges. If the intra-class distribution of family income by family size groups were really equal in these brackets, the computations probably would have yielded an even more marked negative association of rent medians with family sizes. The results as actually obtained presumably understate the true pattern.

Conclusions

As a result of the preceding analysis, it may now be regarded as definitely established that in its effect on the money value of the shelter demanded, the financial strain pressing upon the expenditure budget

[26] Among the 40 rows in Table I (Tenants), the number of rows with "undisturbed" inverse rank order is 23, or 57.5 per cent; among the 40 rows in Table II (Owners) it is 25, or 62.5 per cent.

of large families outweighs the increased need for space. While the dwelling space occupied by larger families is normally greater, the effective money demand for housing and, consequently, the amount of capital that can be remuneratively invested in residential building are larger—other things being equal—when the nation is predominantly composed of small families than when large families prevail. To the extent that it depends on residential construction as an investment outlet, the problem of maintaining a proper balance between saving and investment[27] will, therefore, be eased by a continuation or a reinforcement of the present tendency toward smaller families, and aggravated by a weakening or a reversal of this tendency.

Inasmuch as the family size is determined by the birth rate, our results are a contribution to the question of whether a declining rate of population growth is bound to result in reduced investment opportunities during that transitional period in which the decline in the average size of families is not yet accompanied by a decline in the number of earning units for which investment and employment opportunities have to be provided. The outcome of our analysis shows once more how important it is in discussions on this question to remember that want is not effective demand, and that the main determinants of the one are not necessarily the main determinants of the other. For the volume of consumer want in an economy, the physical number of demand units is always of primary importance. Housing want, as we have seen, is no exception. However, for the volume of effective consumer demand, which is the thing on which the volume of investment opportunities depends, other factors such as income or, for given incomes, the proportion in which they are being budgeted on highly investment-requiring and less investment-requiring expenditure lines, may be more important.

Since housing expenditure is only one of the channels through which changes in family size affect investment opportunities, it would be desirable, in order to obtain a more complete picture, to work out similar analyses of family size/family expenditure patterns in respect of other major expenditure groups (food, clothing, automobiles, etc.). It is, however, doubtful whether in the net effect on capital demand the negative association of family size with the highly investment-absorbing demand for housing can be outweighed by positive associations which might be discovered for other expenditure lines.

In discussions on the economic consequences of a declining birth

[27] We are here using the "common" terminology, and not that of the Keynesian school which, while specifically interested in the real problems commonly referred to as implications of a possible divergence between saving and investment, prefers to treat these problems in a terminology which makes saving and investment equal by definition.

rate, supporters of pessimistic views have sometimes argued that the beneficial effects of the "other factors" on the volume of consumer spending cannot be relied upon with the same confidence with which we may rely on the effects of a high reproduction rate.[28] This argument is, in fact, difficult to combat so long as it is not possible to segregate from one another the quantitative effects of the various factors. In our particular case, the segregation proved feasible. When further analyses will have yielded statistical results as definite as those obtained here, the "other factors" will be known to be quite as calculable and quantitatively dependable as the birth rate. This may help a good deal in dispelling exaggerated apprehensions with regard to an observed or expected decline in the latter.

[28] *E.g.*, W. B. Reddaway, *The Economics of a Declining Population* (New York, 1939), p. 107: "Catering for a rise in the standard of consumption is almost bound to be a riskier business than extending existing industries to provide for more consumers." On arguments of this type, *cf.* J. A. Schumpeter, *Capitalism, Socialism, and Democracy* (New York, 1942), p. 114.

APPENDIX

TABLE I—MEDIAN MONTHLY RENTS PAID BY TENANT FAMILIES COMPRISING SPECIFIED NUMBERS OF PERSONS, FOR EIGHT ANALYSIS UNITS

Analysis Unit[a]	Income Class	Number of Persons					
		2	3	4	5	6	7 or more
I		$22.83	$21.96	$21.65	$21.10	$21.53	$21.12
II		14.26	13.28	13.40	13.36	12.55	12.47
III		18.56	17.54	17.27	17.07	16.50	16.39
IV	$500	10.96	10.60	10.41	9.48	9.25	9.01
V	to	12.69	12.50	12.66	11.93	11.55	10.66
VI	$999	6.80	6.83	6.71	6.50	6.46	6.19
VII		20.46	19.27	17.79	17.39	16.20	15.43
VIII		13.38	12.53	12.13	12.69	9.26	9.59
I		26.69	25.33	25.03	24.55	23.81	22.44
II		17.63	17.17	16.27	15.90	15.00	14.89
III		24.23	22.47	21.95	20.05	20.11	19.20
IV	$1,000	15.95	15.01	14.85	15.00	14.18	13.54
V	to	18.97	18.08	17.08	16.29	15.77	14.91
VI	$1,499	11.12	11.09	10.19	9.65	8.92	7.34
VII		25.00	23.60	22.63	21.29	18.89	18.43
VIII		16.51	16.34	15.64	15.08	15.23	11.85
I		31.44	30.74	29.01	28.08	26.74	25.36
II		22.67	23.75	22.33	20.25	18.18	17.09
III		28.96	28.13	26.77	25.58	25.65	23.32
IV	$1,500	18.87	18.43	18.09	17.98	17,10	16.38
V	to	24.88	23.84	23.09	20.13	19.81	18.02
VI	$1,999	16.85	16.94	16.26	16.11	15.34	15.38
VII		28.47	27.64	26.82	26.02	23.83	23.48
VIII		20.73	19.80	18.59	17.44	16.79	16.05
I		38.28	37.36	35.77	34.04	31.22	28.50
II		28.64	28.25	27.21	24.60	21.19	19.96
III		35.80	34.96	33.46	30.64	29.02	26.97
IV	$2,000	22.69	24.03	24.06	21.78	17.46	18.06
V	to	31.18	30.78	28.95	26.58	23.76	19.87
VI	$2,999	19.63	19.64	18.14	17.74	16.65	15.87
VII		33.68	33.21	32.46	30.14	25.75	26.56
VIII		23.93	23.26	22.52	23.39	19.53	18.33
I		48.44	48.49	46.20	42.27	39.48	34.57
II		43.09	42.50	37.59	35.43	29.39	26.94
III		44.86	44.63	42.87	38.74	36.55	32.56
VI	$3,000	29.39	36.67	28.93	26.89	27.14	25.92
V	to	44.09	41.80	39.76	35.15	29.38	28.70
VI	$4,999	29.50	30.24	28.18	28.42	26.28	29.63
VII		39.93	40.90	41.62	37.00	36.18	33.26
VIII		29.42	29.26	28.84	27.78	24.29	25.91

[a] The analysis units have the following meaning: I, North East Urban; II, North East Rural Nonfarm; III, North Central Urban; IV, North Central Rural Nonfarm; V, South Urban; VI, South Rural Nonfarm; VII, West Urban; VIII, West Rural Nonfarm.

Table II—Median Estimated Monthly Rental Value of Dwellings Occupied by Owner Families Comprising Specific Number of Persons, for Eight Analysis Units

Analysis Unit[a]	Income Class	Number of Persons					
		2	3	4	5	6	7 or more
I		$28.50	$27.91	$28.26	$27.31	$27.04	$22.02
II		18.28	16.00	15.46	15.28	11.91	13.39
III		21.46	20.57	19.41	19.79	17.31	15.35
IV	$500	13.00	11.19	9.73	9.89	8.87	8.26
V	to	15.38	14.41	13.99	12.25	10.90	8.95
VI	$999	9.20	8.77	8.17	7.66	7.06	6.71
VII		21.59	19.17	17.46	17.91	16.56	14.77
VIII		11.74	10.26	9.31	9.55	10.00	7.12
I		32.95	30.90	29.05	28.59	26.76	26.08
II		24.24	21.77	21.08	19.58	19.31	16.32
III		27.12	25.94	24.62	23.85	22.34	20.49
IV	$1,000	17.32	17.49	16.72	14.93	14.61	13.85
V	to	23.28	21.22	19.45	18.17	16.67	14.67
VI	$1,499	15.71	15.74	13.75	13.47	11.61	9.95
VII		26.02	24.36	23.85	21.55	21.79	16.66
VIII		17.72	16.60	15.88	16.61	14.44	12.44
I		36.99	35.84	33.98	33.18	30.79	27.20
II		29.83	27.93	27.24	26.43	23.97	19.57
III		32.82	31.89	30.12	29.23	27.05	26.47
IV	$1,500	22.72	23.03	21.23	19.71	19.81	18.13
V	to	28.51	27.77	26.35	23.98	22.62	19.28
VI	$1,999	20.66	19.84	18.94	17.86	17.64	16.59
VII		32.29	32.11	30.46	27.89	25.43	20.64
VIII		24.21	23.01	22.15	21.81	18.35	17.62
I		43.88	41.72	40.33	39.15	36.22	32.52
II		39.65	37.04	34.01	30.20	28.76	26.58
III		28.81	27.49	26.58	25.24	22.74	20.59
IV	$2,000	29.83	29.02	27.79	24.92	24.20	20.00
V	to	35.68	35.47	32.96	29.69	27.97	25.68
VI	$2,999	30.53	28.27	26.70	23.33	19.70	18.04
VII		37.58	37.67	36.74	34.11	31.91	27.36
VIII		28.04	28.12	27.82	26.17	22.58	21.52
I		54.22	51.06	50.12	44.84	43.13	38.52
II		51.56	51.83	46.23	37.78	36.15	30.02
III		48.91	46.30	43.18	39.81	37.03	35.86
IV	$3,000	39.12	37.89	36.94	30.63	31.67	28.83
V	to	49.08	47.47	42.96	39.76	36.91	33.80
VI	$4,999	49.85	42.13	40.63	35.47	28.87	27.42
VII		48.22	44.21	45.19	42.56	36.82	35.18
VIII		40.42	36.55	34.81	34.56	26.45	26.67

[a] See note, Table I.

THE SOVIET UNION'S WAR BUDGETS

BY THEODORE A. SUMBERG*

About two weeks before V-E Day, on April 24, Finance Commissar Arsney G. Zverev submitted the budget estimates of the Russian government for 1945 to its Supreme Soviet. He also offered a survey of previous wartime budgets. He presented the 1944 budget figures a year before after an absence of budgetary information in the two previous years and, for that matter, after a complete blackout of official information on Soviet war finance since 1941. The fairly complete series on Russian budgets now available for the first time for the whole period of the war presents a unique opportunity to learn something of the economic basis of the Russian war effort.

I

There is a strong parallelism of experience in the war economies of the Soviet Union and its Western allies. But this does not show up in an equally strong parallelism of war budgets. The reason is that the Soviet budget is different in a number of ways from other national budgets.

The Soviet budget is made up on a consolidated basis and includes the revenue and expenditure accounts of the federal government and, to some extent, of the governments of the Soviet republics and local units. The unconsolidated portion of the republican and local budgets, though not uniform year to year, is usually small.[1] The general principle governing the relationship between the two budgetary systems is that local administrative expenses and the financing of the development of light industries, as officially defined, falls to the responsibility of the republican and local budgets, while the financing of defense, other indisputably national activities, the development of heavy industries, and the administrative expenses of the federal and republican governments is borne by the state budget. Some activities, such as "social and cultural measures," are jointly financed in proportions fixed by the central authorities. Since republican and local governments have certain tax collecting responsibilities, it is their practice to remit definite percentages of their tax receipts to the central budget and, at the same time, to receive in return state budgetary grants to be used for approved

*The author is an economist of the Federal Reserve Bank of New York. The views he expresses are his personal opinions only.

[1] Wartime information on this portion is so scanty that it may be neglected in the account that follows.

purposes within their territory. The result of the central budget's consolidation is obviously to make it more inclusive of the nation's total expenditures and revenues than is true of the budget of any other government, whether centralized or federal.

The same result is achieved in more substantial fashion by virtue of the fact that the central government directly operates economic enterprises and that part of the profit receipts and the working capital and capital development expenditures of these enterprises are included within the national budget. This is so at least with respect to heavy industries, for part of the capital outlays and profits of light industries are similarly incorporated within republican budgets. The central budget may, therefore, be understood to include part of what is equivalent in the United States to corporate reserve funds, derived from profits and devoted to capital expansion. In the Soviet economy this expansion is also financed in smaller degree out of "corporate reserves" retained by the enterprise and not consolidated with the state budget. The Soviet budget obtains its part of the profit receipts of state establishments through special taxation taking advantage of the government's monopoly ownership, that is, by an unchallenged markup of the price of goods and services (the so-called turnover tax) and by a profits levy. The result of this inclusion within the Soviet budget of a portion of "corporate reserves" is another reason for its substantially greater participation in the collection and distribution of the nation's output than elsewhere. It is estimated that in 1931 no less than 42.9 per cent of the national income passed through the central budget.[2] No other country has had a similar percentage except for the recent war years, when the percentage of Russian national income circulating through the state budget also rose.

Statistics on Russian national income are much too scanty to make possible a detailed breakdown of its budgeted and non-budgeted portions. It is helpful, however, in understanding the place of the budget in the Russian national economy to list briefly the main respective portions. Obviously, the wages and pensions and the purchase of supplies incurred in administering the government are included in the budget; minor transfer expenses connected with the public debt service are also included; the net receipts and expenditures of the state's railway and communication facilities; defense expenditures; communal consumption in the form of government expenditures for social and cultural measures, as they are called; and, finally, part of the funds for working capital and capital expansion of heavy industries and other state enterprises (state farms, for instance).

[2] A. Baykov, "Remarks on the Experience in the Organisation of 'War Economy' in the U.S.S.R.," *Econ. Jour.*, Vol. LI, No. 204 (Dec., 1941), p. 424.

Outside the budget are mainly the consumption expenditures for goods and services of the population; the part of the working funds and capital expansion of heavy industries and state enterprises that is self-financed out of its own retained profit accumulations; the capital funds of light industries both self-financed and carried by republican budgets; and the operating and most of the capital expenditures of the minor non-socialized enterprises. The capital development of the collective farms, which are not state enterprises, is made mainly from their own financial resources but partly from the budget. No personal savings are included in the non-budgeted portion of this account because they are already represented in the budgeted funds for defense and capital development.

II

The record of budgetary expenditures from 1938 through 1945 (estimated) is shown in totals and in percentages in Tables I and II.

TABLE I—U.S.S.R. STATE BUDGET, EXPENDITURES, 1938, 1940–45[a]
(in billions of rubles)

	1938	1940	1941	1942	1943	1944	1945
Defense[b]	27.5	56.0	70.9	108.4	124.7	137.9	137.9
National economy	57.1	57.1	73.2	n.a.	31.1	49.0	64.6
Social and cultural measures	35.3	43.0	47.9	n.a.	37.7	51.1	66.1
Administration	5.3	6.8	7.1	n.a.	n.a.	7.3	9.5
Other[c]	4.2	11.4	16.9	n.a.	n.a.	17.7	27.2
Total[d]	124.0	174.3	216.0	n.a.	210.0	263.0	305.3

[a] Based on budget reports of the Commissar of Finance, gathered from the following sources: *Pravda*, April 25, 1945, pp. 2–3; *Foreign Commerce Weekly*, May 19, 1945, p. 50; *Economist* (London), May 5, 1945, pp. 586–87; *Economist* (London), February 5, 1944, pp. 179–80; and A. Yugow, *Russia's Economic Front for War and Peace* (New York and London, 1942), pp. 126, 137. The few slight discrepancies for the earlier years were resolved in favor of the later source. The 1944 figures are preliminary and the 1945 figures only estimates (in the past close to actual sums) approved by the Supreme Soviet.

[b] Including the Interior Commissariat, its expense for 1938 amounting to 4.3 billion rubles.

[c] Includes debt service, reserve funds, and other minor items.

[d] The 1945 figure was raised to 307.7 billion rubles by the Supreme Soviet, according to the *International Labour Review*, July 1945, p. 49.

The rise of 112 per cent in total expenditure levels from 1938 to 1944 is comparable to the rise in gross national product for the same years in the United States (some 145 per cent) and in the United Kingdom (77 per cent), taken together. But the Russian performance in matching the Anglo-American record is somewhat surprising on a number of grounds. For one thing, Russia's war economy antedated the war, its defense expenditures rising steadily from 3.5 billion rubles in 1933 to 56.0 billion in 1940, and one would therefore not expect a doubling

of a sizable part of its national output within six years. The loss of the highly-developed western areas would even lead one to expect a general budgetary decline, just as the reconquest of these areas and the start of their reconstruction is partly responsible for the record total expenditure levels for 1944 and 1945.

TABLE II—U.S.S.R. STATE BUDGET, EXPENDITURES, 1938, 1940–45[a]
(percentage)

	1938	1940	1941	1942	1943	1944	1945
Defense	22.2	32.1	32.8	n.a.	59.4	52.4	45.2
National economy	41.7	32.8	33.9	n.a.	14.8	18.6	21.2
Social and cultural measures	28.5	24.7	22.2	n.a.	18.0	19.4	21.7
Administration	4.3	4.0	3.3	n.a.	n.a.	2.8	3.1
Other	3.4	6.5	7.8	n.a.	n.a.	6.7	8.9
Total	100	100	100	n.a.	100	100	100

[a] Same as Table I.

Apart from an undoubtedly large increase in real output in unoccupied areas, including industrial areas mushrooming up in the Urals, the large percentage rise must be due in no small part to price advances. It is a fair guess that the Soviet government did not have more than twice the real resources available to it in 1944 as in 1938. However, the estimated increase from 1944 to 1945, if it is realized, cannot be laid to a depreciating ruble if scattered reports of price stability in the earlier year and of sharp declines after V-E Day are to be believed.

The extent of the wartime price advance, though undeniably greater than in the United States and Great Britain, cannot be estimated with any accuracy, for no price indices have been published in Russia since 1931. It is known, however, that, owing to its forced industrialization and its active military preparation, the Soviet economy always has had an inflationary bias. That this bias should be strengthened under the severe strain of war, by enemy occupation and looting of its richest regions, and by a general transport upheaval is no surprise. The price inflation—apparently unaccompanied by panic psychology—has showed up not only in the legal open markets,[3] where the authorities permit sky-rocketing prices, but also in official markets which have had to absorb new taxes on merchandise, some of them raising prices by more than 100 per cent. The budget figures must, therefore, be read with a certain but indefinite amount of price increase in mind.

It is no surprise that defense constitutes the single most important

[3] These markets include only a small portion of the total volume of retail trade. The average Russian is used to them, however, and the reported widespread trading of the Russian soldier in the black markets of eastern Europe may seem only "natural" to him.

item in the budgeted expenditures. It made up almost 60 per cent of total expenditures in 1943. Actual budgeted military expenditures are considerably higher, however, as not a small portion of national economy expenditures is devoted to the construction of armament facilities and for other military purposes. No computation of Russian war costs can overlook this fact. Another fact which should also be kept in mind—were available data adequate enough to permit a comparison of Russian with British and American war costs—is that the full extent of the Russian war effort represented a diversion of resources otherwise going to consumption and investment, while Great Britain and especially the United States were able to use for war purposes a portion of their resources that would otherwise probably be idle.

As Table I shows, there was only a modest increase in defense expenditures in 1944, at the height of the war, over 1943. This would be difficult to explain except that it may represent for the Russian war economy the same experience of stability and "normalization" that is apparent in so many economic indices in the United States and Great Britain over the same period. It is not possible to explain the identity of the estimated defense expenditures of 1945 with those made in 1944. Mr. Zverev himself does not offer any explanation except that, two weeks before V-E Day, he called for a further intensification of the war effort. Since his budget was revealed while the Pacific War was on, he may have been directing a warning to Japan. The identity may also have been chosen to represent the highly provisional character of any such estimate. The *Economist* (London) suggests a deliberate overestimate so as to build a reserve to be used for reconstruction.[4] Whatever the proper explanation, however, the sudden Pacific victory will undoubtedly make part of the funds earmarked for defense available for other purposes.

The budgetary grants to the national economy offer a rough index of outlays for the capital expansion of Soviet industry and other branches of the national economy. In recent years more than half of these grants have been devoted to capital construction, the remaining portion being allocated to the expansion of working capital and for other purposes. A smaller amount of capital construction, as explained above, is also financed from unbudgeted sources. Mr. Zverev's speech before the Supreme Soviet gave the total budgeted and unbudgeted figures for capital construction in 1944 and expected in 1945. For the earlier year capital expenditures were 29 billion rubles, of which 23 billion came from the budget. For 1945 a capital expansion of 40.1 billion rubles is projected, 31.2 billion to be covered by state budget allocation. According to Mr. Zverev, almost half of the 40.1 billion

[4] The *Economist* (London) May 5, 1945, p. 587.

total will be used for reconstruction, an impressive sum indicating that Russia will soon be back on its path of sensational capital growth.

As to the budgeted figures themselves, the low volume of national economy expenditures of 31.1 billion rubles in 1943, as compared to previous years, is an especially notable fact. The wartime halt in aggregate capital expansion and, for that matter, the depreciation that has undoubtedly taken place in the plant and equipment of at least the civilian goods industries must be partly responsible. There may also have begun in that year a slowing down in the rate of expansion of the productive facilities of war industries, parallel to what showed up so conspicuously in the United States and United Kingdom war economies; however, owing to the short time available to meet the German onslaught of July, 1941, expansion in military-use productive facilities took place to a smaller degree in the Soviet Union than might be expected as the Russians have been reported to have made a phenomenally large use of salvage equipment and machines. The inability to undertake any reconstruction work in 1943, such as began in earnest in 1944, also accounts for the low national economy expenditure totals in that year.

It is certain that Russian industrial capital has suffered a deep wound from battle damage and disrepair. Though less spectacular than damage, the extent of depreciation has probably been very great, and great sections of plant and equipment will have to be placed—this time irretrievably—on the junk heap. At the same time, Russia will emerge from the war with some new and up-to-date machinery as well as a greater amount of accumulated technical skill. An improvement in productivity from more efficient equipment and from its more economical use, through assembly line techniques and so on, has undoubtedly been forced by the very keen shortage of fuel, raw materials, and labor and despite the necessity of using "diluted" labor supply (women, old folks, young people). It is obvious as an early post-war factor, however, that alongside the increase in the skills of labor never before employed industrially there has occurred a definite depletion of "human capital" in the form of widespread war weariness as well as of physical capital. An increase in Russian industrial labor supply—and in the quality of its skills—will, therefore, be an essential condition for future capital formation, as it was throughout the twenties and thirties.

Details given in Mr. Zverev's speech with respect to the social and cultural expenditures contemplated for 1945 indicate early attempts to replenish this "human capital." The record figure of 66.1 billion rubles is impressive enough, but Mr. Zverev elaborates by pointing out that the government is planning for a higher educational school enrollment of 28 per cent more than in 1944, raising the total almost to the

pre-war level; a technical school enrollment of 30.3 per cent more than in 1944; an 11.1 per cent increase in primary and secondary school attendance; and an expenditure of training for labor reserves of 25 per cent more than the year before. Other than education, the other parts of this expenditure, in the order of importance, are state social insurance, health and physical culture, pensions, and aid to mothers, all increased over 1944.

The increase in the administrative expenses of the government in 1945 is due mainly to the liberation of western areas, Mr. Zverev reports. He notes that the government establishment gave up some of its labor force to war industries during the war, but calls for additional economies. The increase in "other" expenditures, so far as the cost of debt service is concerned, will be discussed below.

III

The Soviet budget is always formally balanced. One aspect of this is that, since the budget includes a substantial part of both national expenditure and income, the expenditure level is largely determined by the size of the defense and national economy totals, and once this level is given, Soviet authorities have merely to adjust tax rates to obtain the required revenue. The tradition of a strong government at the center permits the Russian authorities to resort to heavy taxation rather than to public borrowing. There is, however, a certain degree of borrowing from the public, and the inclusion of loan receipts with tax revenues in the budget indicates the purely formal character of budget balancing.

The main source of state revenue in the Soviet economy is the turnover tax. No less than 63.1 per cent of the budgetary receipts of 1938 came from this source alone. Containing more than 2,500 rates, the turnover tax is imposed on almost all consumption articles as a markup on the cost of production and on the fixed rate of profits. Articles of first necessity are by no means excluded from this tax, as is sometimes claimed, but are included along with almost the entire range of consumer products, often at higher rates than less essential goods.[5] The tax often amounts to more than cost of production. The tax on wheat and rye, for instance, stood at about 75 per cent of the price in 1941, and sugar at no less than 85 per cent. The tax is the main financial instrument by which the Russian state curtails consumption in order to promote capital construction and national defense. Offering no possibility of evasion by the taxpayer-consumer, it is also an efficient

[5] The rates on food products accounted for 73 per cent of total turnover tax receipts in 1940, according to A. Yugow. See his *Russia's Economic Front for War and Peace* (New York and London, 1942) p. 132.

weapon for the forced mobilization of the community's savings in the interest of rapid industrialization and urbanization.

Tables III and IV show how the sharply curtailed wartime consumption affected the volume of turnover tax receipts. The fact that receipts were as high as 105.9 billion rubles in 1942 is somewhat surprising unless it is known that the tax was drastically increased in that year, for some commodities by more than 100 per cent. The sharp decline in such receipts in 1943 and 1944 is especially noteworthy and permits an approximation to the extent of the drop in civilian consumption

TABLE III—U.S.S.R. STATE BUDGET, REVENUES, 1938, 1940–45[a]
(in billions of rubles)

	1938	1940	1941	1942	1943	1944	1945
Turnover tax[b]	80.4	105.8	124.5	105.9	17.1	80.2	137.8
Profit Tax	10.6	21.3	31.3	n.a.	n.a.	n.a.	n.a.
Personal taxes[c]	5.0	9.4	12.5	n.a.	28.6	37.2	45.3
Other revenues[d]	26.4	32.3	35.3	n.a.	n.a.	n.a.	n.a.
Public loans	5.1	11.4	13.2	n.a.	20.8	34.2	25.0
Total[e]	127.5	180.2	216.8	n.a.	210.0	268.0	305.3

[a] Same as Table I.
[b] Including estimated deductions from profits in 1945, but not in 1943 when they amounted to 19.9 billion rubles and in 1944 to 35.9 billion.
[c] Mainly direct but also indirect taxes on the population.
[d] Mainly includes insurance taxes and premia and the income of machine tractor stations.
[e] Same as footnote d of Table I.

during the war. It is possible to accept such receipts as a rough index of consumption, especially in cities; and if the receipts for 1943 are reduced, say, 40 per cent to account for the tax rate increases of the year before, it is seen that consumption in 1943, when Russia had two-thirds of its normal population, was 42.7 billion rubles on a 1938 tax base, or about 47 per cent of the consumption volume of the pre-war year.[6] This compares with a decline in the volume of consumption in Great Britain of some 20 per cent and an American rise of about 10 to 15 per cent.

The relatively high estimate of turnover tax receipts for 1945, apart from the incorporation of withheld profits, reflects the increase in consumer goods output expected during the year, according to Mr. Zverev. There is no information as to whether the wartime tax rates have been eliminated, though the high estimate would indicate their retention during 1945. An Associated Press dispatch from Moscow early in May, 1945, also reports that many Russian industries were swinging back

[6] Assuming the increase in turnover taxes as amounting to more than 40 per cent of total receipts, the *Economist* (London) February 5, 1944, p. 179, comes to the conclusion of a two-thirds drop in 1943 from 1940.

into partial reconversion early last year. Needless to say, the level of consumption in 1945, even on favorable assumptions, will still be extremely low compared to pre-war levels.

Table IV reveals a decline of more than 50 per cent from 1938 to 1944 in the share of state revenue accounted for by the turnover tax. Part of the decline has been offset by increased revenues from the profits tax, though it is not known exactly to what extent for more recent years. It should be understood, however, that the profits tax is more different in name than in economic effect from the turnover levy, and, in fact, from 1943 on a special war profits tax was included in the turnover tax receipts. The profits tax takes a fixed share of the profits

TABLE IV—U.S.S.R. STATE BUDGET REVENUES, 1938, 1940–45[a]
(percentage)

	1938	1940	1941	1942	1943	1944	1945
Turnover tax	63.1	58.7	57.4	n.a.	33.9	29.9	45.1
Profit tax	8.3	11.8	14.4	n.a.	n.a.	n.a.	n.a.
Personal taxes	3.9	5.2	5.8	n.a.	13.6	13.9	14.8
Other revenues	20.7	17.9	16.3	n.a.	n.a.	n.a.	n.a.
Public loans	4.0	6.3	6.1	n.a.	9.9	12.8	8.2
Total	100	100	100	n.a.	100	100	100

[a] Same as Table I.

of the state enterprise. As prices and output volumes are fixed by the state, the profit tax also operates as a markup on the price of goods paid by the ultimate consumer. The profit levy therefore simply adds to the flow of funds from the public into the national treasury, there to be used for state purposes. The wartime flow of profit funds to the treasury also includes profits gained by cost economies achieved by state enterprises and funds made free by the failure to make good the normal depreciation of Soviet industries.

Personal taxes mainly include two direct levies, the income tax and the agricultural tax, as well as various miscellaneous imposts. The Soviet income tax not only varies in a progressive way over the income scale but also according to the category in which the taxpayer is placed, workers, artists, and so on. There is also a bias in favor of income derived from socialized, as against individual, enterprises.[7] The agricultural tax is paid as a percentage of gross profits by the collective

[7] For details of this and other taxes, see A. Yugow, *op. cit.*, pp. 123-48; Paul Haensel, *The Public Finance of the Union of Soviet Socialist Republics* (1938); Paul Haensel, "Recent Changes in the Soviet Tax System," *Taxes*, Vol. 19, No. 11, (Nov., 1941) pp. 677-82; and The Tax Research Foundation, *Tax Systems of the World*, 7th ed., (Chicago, 1938) p. 341-42.

farm, its members, and individual peasants. Both of these taxes were sharply increased in July, 1941, by as much as 100 per cent for most income classes. The sharply progressive inheritance tax and special excise levies (in addition to the turnover tax) have also contributed to raising wartime personal tax receipts to record levels and to record proportions of total budgeted revenue. Two new war taxes, one on bachelors and childless couples (graded according to salary), and one on men exempt from military service, have also added substantial sums to these totals.[8]

The increased importance of progressive direct taxation in Soviet finance is not without political and economic significance. As long as the Soviet Union was an income-equalitarian society, or was reasonably close to it, the turnover and profits taxes (assuming more or less uniform consumption habits among the population) were a fair way of distributing the burden of industrialization and national defense upon the community. But with the growth of income inequality, an exclusive or even a heavy use of these levies has a distinctly regressive effect in requiring "the poor man" to give up a larger portion of his income for state purposes than "the rich man."

The greater use of progressive taxes can be a way of preventing this result, but so far, except perhaps during the war, little has been done along these lines. The wartime developments have probably not been sufficient to counteract simultaneously operating inequalitarian tendencies of great force. The almost universal piecework basis of the wage system and of the income of collective farmers (based as it is on "working days") must continually make for the growth of income inequality, especially during the war as large numbers of unskilled workers, including women, take their place in factories alongside experienced labor. The vast growth of the Army, including about one-tenth of the population, but also affecting the income status of their families, must also increase inequalitarian tendencies.[9] Earnings of selected technicians have been reported as much as twenty times as high as the basic earnings of many workers, and special grants, prizes, and the widespread use of bonuses have generally made things more unequal. The progressive workings of the incidence of Soviet taxation will have to be much more developed than it is to offset this wartime increase of income inequality, especially in a society presumably directed as an ultimate goal to "socialist equality."

"Other revenues" shown in Table III largely include premia received

[8] See New York *Times*, November 27, 1941, p. 9. It should not be thought that I have given a complete account of the new taxes introduced during the war.

[9] W. H. Hutt, "Two Studies in the Statistics of Russia," *South Afr. Jour. Econ.*, Vol. 13, No. 1 (Mar., 1945), p. 41; and *Economist* (London) July 3, 1943, p. 17.

for government insurance and the income of machine tractor stations. The insurance is of two kinds, an obligatory type of fire, accident, and natural calamities and a voluntary type for life, old age, endowment, and other forms. The volume of premium payments has naturally risen during the war in view of the expansion of farm and personal incomes. Though no wartime receipt figures are available on machine tractor stations, income from this source has surely declined owing to the loss of the western agricultural areas. As these areas have been regained, increases in all forms of tax revenues have occurred. Not mentioned elsewhere, it is possible that the money value of Lend-Lease and mutual aid goods have been incorporated in the wartime figures of "other revenues," thereby swelling total revenue sums. The sale of some of these goods may also have added to turnover tax receipts.

Public loans accounted for almost seven times more revenue in 1944 than in 1938, and were almost 13 per cent of the total budget in 1944 compared to 4 per cent in the earlier year. The increased recourse to these loans has been one of the most interesting features of Soviet war finance. Public borrowing is well established in Soviet Russia. In 1940, sixty million people subscribed to loans amounting to 9.4 billion rubles.

Russian war loans are allotted to three types of customers: (1) to state enterprises, which are given obligatory quotas on the basis of their profits; (2) to savings banks, which are required to carry a part of their funds in government bonds; and (3) to the public at large, which buys them subject to "moral pressure," or on a semi-obligatory basis, through their collective farms and places of urban employment. Weekly payroll withholdings facilitate public purchase, and lottery prizes (in lieu of interest payments) given on one-third of the total publicly-purchased issue increase its attractiveness.[10]

The 25 billion ruble loan of 1945, which was issued on May 4, 1945 with a maturity of twenty years, illustrates Russia's war borrowing methods. There were three previous war loans, each oversubscribed: one of 10 billion rubles in April 1942, one of 12 billion in June 1943, and the 25 billion ruble issue of 1944. The 1945 issue is divided into two parts of unrevealed proportion. One type of bond, bearing 2 per cent interest payable annually in equal installments from 1949 to 1965, is sold only to "institutional investors," that is, state enterprises, agricultural associations, and the like; and the other, a lottery issue carrying winnings amounting to 4 per cent of the issue, to the public. The lottery bonds that draw winning numbers (the drawings are semi-annually) are repayable at their face value plus cash prizes, while the undrawn bonds are redeemable at par from 1948 onward. There is no

[10] Fuller details on the features of Russian government borrowing may be found in an article by Professor M. Bogolepov in the *Financial News* (London) December 18, 1944, p. 5.

market for either the interest or lottery bonds, and they cannot be sold without the consent of the Treasury. Interest receipts and lottery prizes are tax exempt.

Interest rates on the government's bonds have declined during the war in continuation of a trend begun since 1935. But interest rates obviously have little significance in an economy where the community's savings are effectively and forcibly mobilized by "real" measures and non-evadable taxation. Debt service too is of little importance, part of it merely taking away profits of state enterprises with one hand and making interest payment to them with the other hand. A minor income redistributional effect, as between the industrial workers and the peasant, arises from the fact that the former is obliged by "moral pressure," more conveniently applied to him than to the peasant, to hold a disproportionately large percentage of the public debt; on the other hand, the benefits of state expenditures are probably biased in favor of the industrial population.

The value in real goods of interest payments and lottery winnings have doubtless declined over the past decade owing to price level increases. But this is true for all holders of money claims, whether in cash or in bonds, and not least of all for the hoard-minded peasant population. This group has accumulated vast money sums during the war for, in common with other European governments, the Russian authorities have not tried to prevent it from enjoying boom prices on the produce of private allotments and on the part of the crop sold in the legal open markets. So far as money holdings are concerned, it is probably the peasant class which has benefited most from the Russian wartime inflation. But whether or not the peasant will be able to realize his benefits depends upon the outlays for consumers' goods, and their distribution as between city dweller and country dweller, incorporated in the new Five-Year Plan.

IV

Mr. Zverev did not offer any information in his budget report on the extent of the foreign contribution to the Russian war effort. His only comment was: "When making a preliminary summary of the financing of the Red Army, we must note the considerable help from our Allies in the form of weapons, materials, and food for the Red Army in 1944 as well as in the current year 1945." But it is not impossible to estimate roughly the size of the foreign contribution.

The wartime economic contribution of foreign countries is of two kinds: first, there is Lend-Lease and Canadian and British mutual aid; and, secondly, there are net cash imports. Russia has managed to carry on some trade the past few years, notably exports to the United States

and two-sided commerce with the Middle East, especially Turkey and Iran. But no figures exist on the extent of the trade (and, as a matter of fact, it may add up to a net export), and it may be disregarded. Reparations are in a special class and may also be overlooked.

Lend-Lease reached $10,801,131,000 by October 1, 1945. Russian reverse Lend-Lease has been no more than about a million dollars up to the war's end.[11] The British mutual aid started in July, 1941, and amounted to £269,457,000 up to June, 1944[12] If the mutual aid in the following eleven months is half of this value, total British mutual aid was about 400 million pounds sterling, or 1.6 billion dollars. Canadian mutual aid up to March 31, 1945, stood at 120,914,000 Canadian dollars.[13] The total contribution of the three countries may thus be put at about 12.5 billion dollars during the course of the war.

Mr. Zverev reported that the defense expenditures for the three and one-half years ending 1944 were in excess of 420 billion rubles. Though the war in Europe ended after four more months, half of the estimated defense expenditure for 1945, or 69 billion rubles, may be added to make up a total of 489 billion rubles of defense expenditure. It was noted before that budgeted defense expenditures do not include all of Russia's war cost. To provide a more accurate indication of these costs, it is not unreasonable to include half of the national economy expenditures for 1941 through 1944, or 119 billion rubles (the 1942 figure, though not available, is assumed to be 85 billion rubles). This gives a grand total of about 600 billion rubles for the war period, excluding war preparatory expenditures and disregarding the low price advantage of military procurement officials.

The ruble value of 12.5 billion dollars cannot be estimated with any confident accuracy. As noted before, price statistics do not exist in Russia for about fifteen years. Besides, the ruble neither circulates nor is quoted abroad. Its official value is 5.3 to the dollar, or about 19 cents. Though not converted at a uniform rate, foreign diplomats' funds usually are converted at a lower price to the ruble. For instance, the dollar of American diplomatic personnel exchanges for 12 rubles or 8.33 cents per ruble. To take account of the greater price advances in Russia than in the United States, it is possible to accept for accounting purposes this diplomatic rate. On this basis, the foreign contribution amounts to 104 billion rubles, or about 17 per cent of Russia's computed war costs. At the official exchange rate the foreign contribution amounts to 66

[11] Exactly $2,139,000 to July 1, 1945. See *Twenty-first Report to Congress on Lend-Lease Operations*, for the period ended September 30, 1945, p. 19.

[12] See *Second Report on Mutual Aid* (November 1944) p. 11.

[13] See *Second Annual Report of the Canadian Mutual Aid Board*, to March 31, 1945 (Ottawa, 1945), p. 3.

billion rubles, or almost 11 per cent of the computed costs. No account is taken of war damage costs, officially reckoned at 679 billion rubles.[14]

V

One must leave the relative security of budgetary figures for scattered newspaper accounts to obtain information on the Soviet Union's post-war economic developments. It appears that the Soviet war economy is unwinding itself in an economic milieu recognizably similar to circumstances in the United States and Great Britain. For instance, reductions in taxes have been put into effect through the elimination of special war levies and the reduction in the turnover tax on a wide range of commodities. The general supply situation has turned noticeably easier and rationing made less stringent on many commodities, including such essentials as sugar. The Russian people must have received well the promise of Premier Stalin in his speech of February 9, 1946, that ". . . in the very near future the rationing system will be abolished."[15] The population of the Soviet Union has also enjoyed the benefits of sharp reductions in prices for staple as well as luxury products, though this administrative adjustment in prices does not betoken in the same degree the serious relaxation of inflationary pressure that price declines in the Western countries would. As in such countries—in fact, much more than in such countries—the Soviet Union requires several years of uninterrupted consumer goods output to meet deferred demands. In addition, the eight-hour day has been restored, overtime has become the exception rather than the rule, and regular and supplementary holidays with pay for workers, abolished during the war, have been reinstated. All this has apparently taken place concurrently with enthusiastic reports on reconstruction accomplished and under way. Thus far, apart from reparations and soldiers' war booty, the Soviet Union has received no economic assistance from abroad since V-J Day, save for a 400 million dollar Lend-Lease settlement loan of "pipeline" goods from the United States and a 3 million dollar loan from Canada.

The most significant recent economic event has, of course, been the announcement of the preparation of the Fourth Five-Year Plan, to last 1946 through 1950. No fundamental details have yet been released on this plan, but in his aforementioned speech, Premier Stalin set the nation's objective of a threefold increase in the level of production as compared with the pre-war level. This would be accomplished, he announced, even if three new Five-Year Plans were necessary.

[14] New York *Times*, September 14, 1945, p. 15.

[15] New York *Times*, February 10, 1946, p. 30.

COMMUNICATIONS

Money Supply and Liquid Asset Formation

There has long been a logical disparity in the analysis of money supply and of the adequacy of money stock. Money is supplied by institutions which, individually or collectively, have the power of deposit and currency expansion: the Treasury, the central bank (the Federal Reserve System in the United States), and the commercial banking system. If time deposits are counted in the money stock, then the savings banking system must also be included. The factors influencing the stock of money, explained in institutional terms, are the volume of monetary metals held by the Treasury, the central bank or the commercial banks; the volume of nonmetallic reserves held by banks; the amount of non-reserve currency issued by the Treasury, the credit extended by the banking system, and the potential of further credit expansion because of unused reserves.

But when the adequacy of money stock is measured, the magnitudes against which comparison is made are quite different. The quantity of money is measured against the volume of gross transactions in goods and services, the gross volume of income-producing transactions, the gross national product, the net national product, demonstrated productive capacity, or similar magnitudes. All of these bases have the common characteristic of comparing real with monetary magnitudes. The real factors are usually income or some variant of it, or some economic magnitude from which income is derived. These comparisons also have the common characteristic of being stated in velocity terms.

Another disparity has existed because judgments concerning the adequacy of money stock usually are conditioned by the volume of money substitutes, but the analysis of money supply has never been formally tied to the factors that supply money substitutes. It is possible to integrate these systems of supply for analytical purposes, and this integration opens up new channels of monetary analysis.

Money supply and near-money or liquid asset supply can be jointly formulated in terms of income, savings, and investment. This is accomplished by putting the supply factors in equation form and consolidating the equation of money supply with the equation of liquid assets or near-money supply. The equation of liquid asset or near-money supply is supplied by simple rearrangement of the equation of *ex post* savings and investment. This article will present the technique of derivation of this alternative system of money and liquid asset supply.

Money and Liquid Asset Supply in Terms of Savings, Investment, and Income[1]

The process of analyzing money and liquid asset supply for individuals and corporations in savings terms has four steps:

1. Establishment of the money supply equation;
2. Derivation of the money and liquid asset supply equation by consolidation of the money supply equation and the savings-investment equation in modified form.

These two steps accomplish the initial goal and the formulation could be considered complete at this point. For purposes of practical monetary analysis however, there are certain peripheral groups that complicate analysis and are better removed. Furthermore, the analysis takes on added value if the remaining equation is broken into as many significant economic groups as possible. At present available statistics permit division into only two major groups, individuals and nonfinancial corporations. The third and fourth steps carry out these two processes.

3. Subtraction of separate money and liquid asset supply equations of (a) state and local governments, (b) foreign balance of payments, (c) insurance companies, and (d) savings and loan associations, from the aggregate equation of step 2;
4. Derivation of separate equations of money and liquid asset supply for individuals and corporations, from the residual equation of step 3.

In dealing with this system of equations it should be kept in mind that the equations are for intervals of time; they are a form of incremental analysis. Since balance sheet and income statement items both appear in the equations, balance sheet items of necessity appear as changes (increments) for the intervals covered.

Step One.—The money supply equation is derived by consolidating the balance sheets of the commercial and savings banking system, the central banking sytem, and the Treasury currency issue accounts. This equation is already in general use.[2]

(I) *Money supply*

$$\left.\begin{array}{l}\text{Money (deposits and cur-}\\ \quad\text{rency)}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Gold stock}\\ +\text{ Treasury currency}\\ +\text{ Earning assets of banking system}\\ -\text{ Treasury cash and deposits}\end{array}\right.$$

This form of the equation includes time deposits as a part of money supply. If money supply is to be confined to demand deposits and currency, time

[1] The description that follows has been purposely compressed and abbreviated by use of simplifying assumptions. It is also given without illustrative figures. The author hopes to complete and publish a statistical analysis of money and liquid asset supply employing this technique within the next year.

[2] *Federal Reserve Bulletin,* June 1944, p. 539. A similar system was devised by Robert Triffin for analysis of Latin American monetary systems.

deposits can be transferred from the left to the right-hand side where it will be a deduction item.

Step Two.—The derivation of the equation combining money and liquid asset supply requires consolidation of the previous money supply equation with the modified savings-investment equation. Modification of the savings-investment equation is as follows:

(IIa) Investment = Savings

of which the more complete form is:

$$\text{(IIb)}\quad \left.\begin{array}{c}\text{Private capital}\\ \text{formation}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Individual savings}\\ +\ \text{Business savings}\\ +\ \text{State and local government savings}\\ +\ \text{Federal government savings}\end{array}\right.$$

For more than a decade the federal government has been dissaving (running budget deficits) rather than saving (accruing budget surpluses). The federal government securities covering these deficits have been the major supply source of liquid assets. For the moment it will be assumed that such securities (plus time deposits if they are not treated as money) are the only form of liquid asset, though at the end this assumption will be relaxed. In order to reflect the liquid asset supply function, equation (IIb) is recast as follows:[3]

$$\text{(IIc)}\quad \left.\begin{array}{l}\text{Federal government}\\ \text{deficit (dissaving)}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Individual savings}\\ +\ \text{Business savings}\\ +\ \text{State and local government savings}\\ -\ \text{Private capital formation}\end{array}\right.$$

The deficit is related to changes in the outstanding debt of federal government as follows:

$$\text{(IId)}\quad \left.\begin{array}{l}\text{Federal government}\\ \text{debt}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Federal government deficit}\\ +\ \text{Treasury cash and deposits}\end{array}\right.$$

Therefore, combining (IIc) + (IId):

$$\text{(IIe)}\quad \left.\begin{array}{l}\text{Federal government}\\ \text{debt}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Individual savings}\\ +\ \text{Business savings}\\ +\ \text{State and local government savings}\\ -\ \text{Private capital formation}\\ +\ \text{Treasury cash and deposits}\end{array}\right.$$

Combining equations (I) and (IIe) with cancellation of that part of the federal government debt bought by banks against the appropriate part of earning assets of banking system results in the aggregate money and liquid asset equation.

[3] George Jaszi has constructed an equation of this sort to show absorption of savings by the Federal Government. See *Survey of Current Business*, April 1944, *Table* 6, of "National Income and National Product in 1943."

(II) *Money and liquid asset supply*

$$\left.\begin{array}{l}\text{Money and liquid as-}\\ \text{sets (deposits, curren-}\\ \text{cy, and interest-bear-}\\ \text{ing U. S. government}\\ \text{securities bought by}\\ \text{nonbank holders)}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Gold stock}\\ +\ \text{Earning assets of banks (excluding}\\ \qquad\text{U. S. government securities)}\\ +\ \text{Individual savings}\\ +\ \text{Business savings}\\ +\ \text{State and local government savings}\\ -\ \text{Private capital formation}\end{array}\right.$$

Treasury currency is cancelled out in the process since it is noninterest-bearing federal government debt already included in currency in circulation.

The money and liquid asset supply equation derived above accomplishes the major goals originally aimed at. It establishes a relationship between savings and investment and changes in the volume of money and liquid assets held in the economy. Since savings are in turn derived from the gross income flow, which is equated against gross national product, it is therefore possible to establish a derivative relationship between money and liquid asset supply, and gross national product and gross or net income flow.

Step Three.—There are some practical advantages to breaking down the aggregate equation into smaller parts. It is, perhaps, in the direction of more detailed analysis of money and liquid asset factors for segregated groups that monetary analysis will tend to go. This is accomplished in the third and fourth steps. In the third step the peripheral economic entities that do not fit easily into the pattern of national product and national income flow are removed from the basic money and liquid asset supply equation (II). In most cases the excluded entities are those to which the ordinary cash balance considerations do not apply. The list of peripheral or excluded entities can be adapted to the choice of the analyst. The four excluded here are state and local government, foreigners, life insurance companies, and savings and loan associations. The liquidity equations for these groups are as follows:

$$\text{(IIIa)}\ \left.\begin{array}{l}\text{State and local}\\ \text{government money}\\ \text{and liquid assets}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Budget surplus (savings)}\\ +\ \text{Net debt owed}\end{array}\right.$$

$$\text{(IIIb)}\ \left.\begin{array}{l}\text{Changes in foreign}\\ \text{holdings of U. S.}\\ \text{money and liquid}\\ \text{assets}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Net imports to U. S. of goods and}\\ \qquad\text{services}\\ +\ \text{Net imports to U. S. of gold}\\ +\ \text{Net capital export of United States}\end{array}\right.$$

$$\text{(IIIc)}\ \left.\begin{array}{l}\text{Life insurance com-}\\ \text{pany money and}\\ \text{liquid assets}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Insurance reserves}\\ -\ \text{Loans to individuals and businesses}\end{array}\right.$$

$$\text{(IIId)}\ \left.\begin{array}{l}\text{Savings and loan}\\ \text{association money}\\ \text{and liquid assets}\end{array}\right\} = \left\{\begin{array}{l}\quad\text{Saving and loan shares}\\ -\ \text{Loans to individuals}\end{array}\right.$$

Now, subtracting equation (IIIa-d) from equation (II), there follows:

(III) *Money and liquid asset supply of individuals and corporations*

Money and liquid assets of individuals and corporations =
- Debts of individuals and corporations to banks, insurance companies, and savings and loan associations
- − Investment by individuals and corporations in state and local government, and overseas investment
- − Life insurance reserves
- − Savings and loan shares
- + Individual savings
- + Business savings

There are several cancellations in this step. Gold stock cancels out since it is augmented only by import (equation IIIb) or by domestic production (net of use in the arts) which is a part of private capital formation (equation II). All debts of foreigners to banks cancel out; likewise those of state and local government to banks and to life insurance companies.

Step Four.—The final step is that of splitting the residual equation (III) between individuals and corporations. Making the split presents no formulary problems though the practical one of statistical division is by no means easy. The two equations are:

(IVa) *Money and liquid asset supply for individuals*

Money and liquid assets held by individuals =
- Debt of individuals to banks, insurance companies, savings and loan associations
- − Net investment of individuals in the securities of coroporations, state and local government, and overseas investment of individuals
- − Life insurance reserves
- − Savings and loan shares
- + Individual savings
- + Business savings of unincorporated concerns

(IVb) *Money and liquid asset supply for nonfinancial corporations*

Money and liquid assets held by corporations =
- Debt of corporations to banks, insurance companies, and individuals
- − Loans to individuals by corporations
- − Overseas investment by corporations
- + Business savings by corporations

Now it is possible to relax the tentative assumption adopted above that

only federal government securities are to be considered liquid assets. The user of these equations can define liquid assets as he wishes; if life insurance reserves or savings and loan shares are to be so treated, they can be transferred to the opposite side of the equation; likewise, the equation can be converted into one dealing solely with money supply.

Using the Savings-Investment Formulation of Money and Liquid Asset Supply

The vastly increased importance of federal government finance in determining the liquidity of the economy furnishes one of the most important reasons for turning to the savings-investment formulation of money supply. Since the federal government debt will undoubtedly continue to dominate the monetary scene, more and more use may be made of this analytical pattern. It permits simultaneous study of two important aspects of deficit financing. The first point is that *aggregate* liquidity of the economy is largely determined by public policy; the degree to which private choice in the aggregate influences liquidity is relatively little. The second point is that the *relative degree* of liquidity is largely a function of private choice. Except by appeals to mass patriotism it is doubtful if the public authorities have influence in determining the relative proportions of money and near-money forms in the aggregate expansion of liquidity.

Since the relative degree of liquidity is more a matter of voluntary choice, it may be the only dependable clue as to the disposition of wartime savers to use their funds in the post-war world. And even though savings in the aggregate may necessarily be maintained, it is possible that they may be shifted around among savings vehicles and institutions considerably. Again, the relative degree of liquidity is about the only existing evidence as to intentions.

The savings-investment formulation of money and liquid asset supply has a further use in analyzing the liquidity of segregated economic groups such as individuals and corporations. Most of the money use (velocity) measures heretofore employed lumped them all together. Actually, the determinants of money demand are quite different for these various groups. Wartime experience has shown that the rate of money and liquid asset growth for individuals has been quite different from that of corporations. If it were possible, a more refined analysis of individuals by income levels would no doubt show important differences. The savings-investment formulation permits isolation of a large number of differential factors—debts to financial institutions, tax liabilities, depreciation and depletion allowances, rates of savings, and similar factors. Furthermore, the formulation permits a separate study of the relative degrees of liquidity of these various groups.

Still another application of the savings-investment formulation of money and liquid asset supply is in coördinating monetary forecasting with forecasting of national product and income. For example, the popular forecasts that both corporations and individuals are going to draw on their cash holdings to make capital expenditures or to buy consumers' durable goods are obviously inconsistent with the equally common forecasts that deposit levels

will not decline. Disparities of this sort are avoidable when savings are balanced against monetary and nonmonetary vehicles of saving.

ROLAND I. ROBINSON*

* The author is an economist employed by The Board of Governors of the Federal Reserve System.

The Doctrine of Economic Maturity

Dr. George Terborgh has written an important book.[1] It has been declared a "must" for business men's reading by the National Association of Manufacturers; it has been summarized in *Fortune* magazine; it has been enthusiastically reviewed in the New York *Times* and elsewhere. It is hailed in some quarters as an effective debunking of all that is lumped together as "New Deal economics." Certainly, its general conclusion, that policy should be directed toward increasing investment *and* savings, rather than to raising the standard of living in more forthright fashion by increasing the share of income spent on consumers' goods, private and public, is the antithesis of "New Deal economics," and indeed of almost all economics that has been written in the last ten years. The implications of this reversion to pre-World-War-I economics are of serious import; for a policy of maintaining full employment by "such a stimulus to private investment that . . . will immediately put all savings to work in providing capital" would redistribute income from the poor to the rich—just the reverse of the policies of the "stagnationist," as Terborgh calls the economists he lumps together for attack. Consequently, although the book is aimed at the general public and employs a style of presentation that is scarcely academic, it requires the careful consideration of academic economists, and of all others interested in economic policy.

I. *A Bogus Bogey*

It seems necessary to begin by summarizing briefly Professor Hansen's thesis; for the object of some of Terborgh's attacks is a mere straw man —a "bogus" bogey. According to Professor Hansen, in addition to the Juglar and Kondratieff cycles that bring periodic depression,[2] there are in highly developed economies additional factors tending to create an excess of savings over investment at high levels of employment, and consequently to keep the average level around which fluctuations take place well below —and perhaps farther and farther below—full employment. On the investment side, these factors are the declining rate of population growth, the disappearance of the frontier, and the tendency for inventions to become capital-saving rather than capital-absorbing; and on the saving side, the achievement of unprecedentedly high levels of income when full employment is reached, and the growing importance of corporate and institutionalized saving.

From this statement of the thesis, it follows at once that all arguments

[1] George Terborgh, *The Bogey of Economic Maturity* (Chicago: Machinery and Allied Products Institute. Distributed by Anderson House, Washington, D.C. 1945. Pp. xviii, 263. $3.00).

[2] A. H. Hansen, *Fiscal Policy and Business Cycles* (New York, Norton, 1942) chap. 1.

designed to show that the trends contributing to secular stagnation do not explain the 1929-33 downswing are completely irrelevant. Hansen never pretended that they did. Recognition of this simple fact immediately disposes of Terborgh's Chapter XI. It also disposes of much of the argument of other chapters; for much of the argument amounts merely to saying that the trends enumerated had been with us for a long time before 1929, and hence do not explain the appearance of the "Great Depression" in the 1930's rather than earlier. The doctrine of economic maturity was never presented as an explanation of the collapse of investment after 1929; on the contrary, its implication is that deep and prolonged depression has been imminent for decades. Various things, such as gold discoveries, wars, and the appearance of "great new industries," came along to prevent its presence from becoming obvious before the 1920's in Britain or the 1930's in the United States. Even so, during the entire century before 1929 there were long periods when full employment was not reached even at the top of cyclical upswings; indeed, only the conjuncture of Kondratieff and Juglar upswings contrived to produce full employment in peacetime.

The application of the "stagnation thesis" to the great depression of the 1930's does not even rest upon a long-run tendency for investment to fall. The argument is rather that only very strong cyclical factors to *raise* the level of investment can, in the face of the high and rising level of savings that accompanies high and rising national income, combined with a declining rate of population growth and disappearing frontiers, bring about full employment. In the 1930's, no such strong cyclical factors appeared, and the forces of stagnation, which had been present for decades, at last showed themselves in an obvious manner.

Efforts to disprove the "stagnation thesis" by showing that the American economy still has room for expansion are equally futile. Hansen has never denied this fact. The argument is not that gross national product at full employment can increase no further; it is only that full employment is increasingly difficult to attain and maintain as a country becomes more industrialized, more fully populated, more fully developed, and richer. There is, perhaps, also an implication that the gross national product at full employment is unlikely to maintain its maximum historical rate of secular increase, once an economy starts to become more reliant on technological progress alone for further improvement in its standard of living;[3] but even this argument—plausible though it is—is not really essential to the stagnation thesis.[4]

[3] *Cf.* Hansen's article, "Economic Progress and Declining Population Growth," *Am. Econ. Rev.*, Vol. XXIX, No. 1 (March, 1939).

[4] All these ideas are quite clearly stated in Hansen's writings, especially in the first two chapters of *Fiscal Policy and Business Cycles* and his essay on "Economic Implications of a Declining Rate of Population Growth." Since Terborgh does me the honor of including me among the economists he lumps together for attack, I may be forgiven two quotations from my own publications: "Had not war broken out in August of 1914, it is quite possible that the United States would have suffered a prolonged depression during the decade that followed, instead of in the 'thirties" (*The War and Postwar Cycle in Canada, 1914-1923*. Advisory Committee on Reconstruction, Ottawa, 1943, p. 5). "The secular trends were already present in the 'twenties, but they were offset and hidden by increased consumption

Still less valid is the suggestion that the stagnation thesis means that there is no room for a further rise in the standard of living. Indeed, one of the most curious of Terborgh's accusations is that Hansen and his "followers" claim that "there is too much housing in relation to the number of families" (p. 180). All the writers classified by Terborgh as "stagnationists" have stressed the need for special measures to raise the standard of living in general and the standard of housing in particular.[5] Nathan says in so many words, "It was not that we didn't need more houses and more of the goods and services we could produce during the 20's, but those consumers who needed these products didn't have sufficient buying power to consume them all."[6]

The "Stagnationist" Conspiracy

Not only does Terborgh misrepresent the arguments of the economists he attacks but he lumps them together as a "school" of "stagnationists" and "professional pessimists" in a quite unwarranted manner. Indeed, in his discussion of the T.N.E.C. hearings, he virtually accuses them of conspiring to defraud the public. Altman, Chase, Hansen, Henderson, McLaughlin, Nathan, Sweezy—what binds these men together and sets them apart from other economists? So far as the present writer can see, their sole common denominator is an interest in employment policy and a belief that in industrially advanced countries government action is likely to be necessary to maintain full employment.[7] But the group of economists with these characteristics also includes Haberler, Harris, Harrod, Kaldor, Kalecki, Keynes, Lange, Lerner, Marschak, Samuelson, Smithies, and hosts of others. For the sake of discussion, however, I shall confine my exposition of the stagnation thesis to publications of the economists labelled "stagnationist" by Terborgh.

"Stagnationist" Policy Proposals

Terborgh also misunderstands or misrepresents the position of the "stagnationists" with regard to policy. According to Terborgh, they regard deficit-financed public spending as a panacea. Nothing could be further from the truth. Hansen has recommended tax revision, low interest through new credit institutions, private work reserves, assistance for industrial research, and foreign loans to stimulate foreign trade.[8] Nathan says that "To ascribe

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demand, partly for new commodities like automobiles, partly for replacement like housing and utilities. In the 'thirties, no such demand appeared, but it may develop at any time" (My essay with Dr. R. A. Musgrave, "Deficit-Finance, the Case Examined," *Public Policy* II [Cambridge, 1941], p. 152).

[5] See, for example, Hansen and Greer, *Urban Redevelopment and Housing*, Planning Pamphlet No. 10 (Washington, Nat. Planning Assoc.).

[6] Robert Nathan, *Mobilizing for Abundance* (New York, 1944), p. 70.

[7] Since I am—according to Terborgh—the most pessimistic of these "professional pessimists," I might add that I have never met three of my fellow "conspirators," have exchanged only a few words with four of the others, and know only one of them at all well.

[8] See, for example, his pamphlet "After the War—Full Employment," (Nat. Resources Planning Board, 1943); his chapter in *Postwar Economic Problems* (ed. Harris, New York, 1943), and his book, *America's Rôle in the World Economy*, (New York, 1944).

economic depressions to a single, simple cause and to suggest an equally simple and single method of eliminating them would be foolhardy."[9] He contends that "every consideration should be given to stimulating expenditures for capital goods after the war. Policies should point toward minimum restrictions, maximum incentives, and increased competition, so that private investment in plant and equipment will be encouraged. There can be vast outlets abroad for America's productive capacity."[10] Far from presenting public spending as a panacea, he considers it "a last resort." In my own essay with Dr. Musgrave, the conclusion emphasizes the importance of giving proper weight to policies other than deficit-financed public spending. Redistribution of income to raise the level of consumption, stimulation of investment by low interest rates, government sharing of the risk of new enterprise, and " a revision of tax policy in the direction of rewarding rather than penalising risky investments" are among the complementary devices suggested.

Terborgh is particularly bitter about a supposed lack of attention on the part of the "stagnationists" to deterrents to private investment in new or risky enterprises, and especially an alleged failure to appreciate the need for tax reform to increase the flow of "venture capital." He argues that "it seems not to have occurred to the stagnationists that over-saving of loan capital may be the result of the under-saving of venture capital and that its cure may lie in increasing rather than decreasing the supply of funds looking for risk and profit" (p. 218). A few citations will show that the stagnationists have in fact been well aware of this problem. First, Professor Hansen: "While a recovery may be induced in particular by net income-created governmental expenditures, public policy must, in a system of private enterprise, be directed mainly to providing the necessary conditions by which private enterprise can go forward. . . . In this connection it is important to consider the tax structure with a view to the elimination or modification of taxes tending to prevent the normal flow of private investment."[11] Next, Dr. Nathan: "Income taxes should never be increased to a point where so small a portion of income is left to the individual that further investment of funds with any risk whatsoever is foolhardy. Special tax incentives might be granted to industries whose rapid development is in the interest of the national security or well-being."[12] Finally, two statements of my own: "(With a reduction in income taxes) there will be a shift from liquid and safe investments to illiquid and risky ones and the supply of venture capital is increased. . . . We conclude, therefore, that income taxes, and especially corporate income taxes, should be reduced in the immediate post-war period."[13] And, "It is almost impossible to devise a tax system that would raise large sums without

[9] Nathan, *op. cit.*, p. 56.

[10] *Ibid.*, p. 89.

[11] Hansen, *Fiscal Policy and Business Cycles*, p. 383. See also Hansen and Perloff, *State and Local Finance in the National Economy* (New York, 1944), pp. 243, 247.

[12] Nathan, *op. cit.*, pp. 143-44. See also pp. 135-36.

[13] "Post-War Tax Policy," Part II, *Canadian Jour. Econ. and Pol. Sci.*, (November 1944).

discouraging private consumption or private investment, and thus nullifying the stimulating effects of the expenditure."[14]

Actually, the effect of the introduction into economic literature of the concept of secular unemployment has been to make public spending, and especially public investment, seem a good deal less of a panacea than it did before. So long as unemployment was regarded as a purely cyclical problem, countercyclical timing of public investment seemed a reasonably adequate means of meeting it. Given chronic unemployment as well, such a policy is clearly inadequate in itself. In so far as the doctrine of economic maturity has any policy implication arising directly from it and peculiar to it, it is that policy should be directed toward encouraging consumption at the expense of saving. It is only natural that the capital goods industry, the financial institutions, and other economic groups dependent for prosperity on a high level of investment *and* saving, should find this conclusion an uncomfortable one.[15]

II. *Cracks in the Pillars?*

Terborgh subjects each of the main "pillars" in the structure of the Hansen thesis to analytical and empirical tests, and finds them badly cracked. Indeed, his general conclusion is that "seldom has so pretentious a body of doctrine been so scantily fortified by factual evidence" (p. 214). Are the pillars really cracked, or has Terborgh been misled by the grain in the marble?

Population Growth

Terborgh discovered no evidence that countries with high rates of population growth have had a more rapid rise in *per capita* production than countries with slow population growth. The lack of such correlation in historical

[14] "Public Work and our Post-War Economy" in *Post-War Goals and Economic Reconstruction* (ed. Zurcher, New York University, 1944), p. 85. Similar remarks may be found in my address on post-war taxation to the Canadian Manufacturers' Association (*Industrial Canada*, July, 1944) and in my essay with Dr. Musgrave (*op. cit.*).

[15] In this connection, a few words about the passage from my own work that Terborgh singles out for special censure may not be out of place. Terborgh states that I have "topped the bidding" in fantastic estimates of needed "public work." In the first place, as was made clear in the article he cites, I was using the term "public work" to include all government expenditures on goods and services. In the second place, the estimates apply only on the assumption that special measures to raise the level of consumption or investment are not undertaken; and I have frequently stressed the advisability of such supplementary measures. Third, the estimates were based on the arbitrary assumption that the price level would rise fast enough in the first years after the war to offset net reductions in productivity due to withdrawals from the labor supply and shortening of hours. Fourth, while my estimates were extremely crude, for illustrative purposes only, and made at a time when few other estimates had been published; the range of 25 to 50 billion dolllars as the volume of expenditures that will be needed to maintain full employment would seem to be of the right order of magnitude in the light of more careful estimates subsequently published, particularly those of Smithies and Mosak in *Econometrica* for January, 1945, and of Kalecki in the *International Labour Review* of November, 1945. Fifth, such estimates of the post-war "deflationary gap" do not in themselves imply acceptance of all or any of the arguments of the stagnation thesis as outlined by Dr. Terborgh. *Cf.* D. McC. Wright, "The Great Guessing Game: Terborgh *vs.* Hansen," *Rev. Econ. Stat.*, Vol. XXVIII, No. 1 (Feb., 1946).

cases proves nothing with regard to the lack or presence of causal relationships, as any statistician knows. However, Terborgh does not actually deny that the rate of population growth is declining, nor that this factor would in itself tend to reduce investment. He only argues that population growth was declining in the United States for 70 years before 1929, and that *per capita* production increased nevertheless. This fact clearly does nothing to destroy the stagnation thesis. It only shows that in the 70 years prior to 1929, other factors were present to *offset* to a considerable extent the adverse effects of a declining rate of population growth. As Terborgh himself admits (p. 44), even if other factors could be excluded, a real test of the thesis would require a correlation of *investment* with population growth over some 200 years. But, Terborgh adds, why should we worry what happens to investment, so long as production increases? Had he asked, "Why worry about investment so long as we have full employment?" the question would have been relevant but its implication would have been very different; for during the whole period during which population growth declined, full employment was rarely achieved in the United States except during the Civil War and World War I periods.

Actually, the Kuznets (National Bureau of Economic Research) data cited by Terborgh show a very high correlation between American population growth and investment (net capital formation at 1929 prices) from 1869 to 1928, after which there was a sharp break. Gross national product and gross national product per capita were also very closely correlated with population. With respect to the timing of population trends it is worth pointing out that the percentage increase fell very little up to the first World War, and that the *amount* of population growth did not reach its peak until 1925.[16]

The Frontier

Terborgh also admits that the American frontier has disappeared, and that this fact in itself would tend to reduce investment. Again, he points out that the frontier disappeared decades before 1929, and that expansion continued nevertheless. Even though this were true (the last frontier phase *began* in 1890), it would not disprove the thesis. Terborgh also introduces some evidence to show that in any case the existence of a frontier is of minor importance in determining the level of investment. He points out that the ratio of capital formation to gross national product was higher in 1900-1930, when the frontier was gone, than in 1870-1900, when the frontier was flourishing. However, these figures could be interpreted as showing the higher "leverage" effects of investment in the earlier period. Similarly, his figures showing that both in 1850 and in 1890 the states east of the Appalachians had a higher *per capita* wealth than those west of the Appalachians demonstrates mainly the high geographical multiplier effects of opening a frontier —opening the West led to investment in the production of steel rails, agricul-

[16] *Cf.* Alvin H. Hansen, "Some Notes on Terborgh's *The Bogey of Economic Maturity*," *Rev. Econ. Stat.*, Vol. XXVIII, No. 1 (Feb., 1946), pp. 13-14; and Hans A. Adler, "Absolute or Relative Decline in Population Growth?" *Quart. Jour. Econ.*, Vol. LIX, No. 4 (Aug., 1945).

tural implements, and construction materials and equipment in the east.

Capital-Saving Inventions

With regard to "capital-saving" inventions, Terborgh is on still less firm ground. He shows "investment per dollar of output," 1869-1929; he then fits a straight-line trend, and concludes, "there is no existence of an increasing proportion of capital-saving innovations" (p. 96). Had he carried his figures through 1939, a curvilinear trend, with a distinct tendency to flatten out, would have fitted his figures from 1897 on better than a straight line. The Kuznets data show a rising ratio of output of capital goods to output of final products (excluding construction) from 1869 to the first World War and then a steep and steady decline. This point is of considerable importance; for Terborgh's whole argument regarding the effects of maturity on the rate of replacement rests on the assumption that the ratio of capital-consumption to output does not fall with maturity—that is, on the assumption that there is no tendency for capital equipment to become more durable. Otherwise the fact that a tapering off of the rate of new investment results in an increase in the average age of existing equipment does not lead, as Terborgh argues that it does, to greater "replacement opportunities."

Great New Industries

Terborgh argues that "great new industries" have no more influence on capital formation than hosts of small industries. This argument would affect the theories of Professor Schumpeter, whom Terborgh classifies in his book as an "anti-stagnationist," more than those of Professor Hansen; but in any case part of the evidence presented to support the argument is irrelevant. He points out that the share of the total investment provided by railroads and motor vehicles together shows no clear trend. "For 50 years after the 1870's their combined rate of investment rose no faster than capital formation as a whole" (p. 88). However, it is not the *relative share* of these industries in total investment that counts, but the *volume* of investment. Moreover, the fact that investment in these industries rises no faster than capital formation as a whole might well be regarded as corroboration of the Schumpeter or Hansen thesis, since it might merely indicate the very large leverage effects of investment in large new industries. In any case, what Terborgh ultimately succeeds in doing is to demonstrate the enormous importance of great new industries. The automobile industry alone, he shows, might have been responsible, directly or indirectly, for as much as 20 per cent of total investment in the 1920's; for fifty years, three industries were *directly* responsible for 13 to 20 per cent of total investment.[17]

Trends in Saving

On the savings side, Terborgh unjustly accuses the "stagnationists" of completely ignoring the effects of declining rates of population growth on

[17] *Cf.* Wright, *Rev. Econ. Stat.*, Vol. XXVIII, No. 1. Terborgh's statement that more patents were issued in the 1930's than in the 1920's is just another example of irrelevant data. Clearly, the number of patents is only very loosely related to the level of investment, and the fact that more patents were issued in the thirties than in the twenties in no way

savings.[18] He then proceeds to argue that a declining rate of population growth reduces saving because with more old people, there will be more net dis-savers. This argument is of doubtful validity; for children also consume more than their incomes—or their parents for them; and a high birth rate certainly involves more net dis-saving by young families than a low birth rate. His argument that *some* saving is undertaken for the express purpose of investing is, of course, in any case, fully recognized by the "stagnationists" and is quite irrelevant; so long as some saving is planned for which there is no offset, income and employment must fall.

Depreciation Allowances; Internal Financing

In discussing capital consumption as a source of saving, Terborgh abandons the statistical approach, and makes no effort to evaluate the volume of depreciation allowances. He simply argues that capital consumption is measured by the decline in capital value rather than by the use of services from capital assets; that depreciation allowances earned are less than allowances accrued (which might be the *result* of stagnation, incidentally); that not all firms set aside allowances anyhow, and that to some extent the allowances are used for new investment. When he comes to internal financing of corporations, he suddenly discovers that causal relations are hard to disentangle in economic history! However, he bravely embarks upon an effort to measure net inflow of capital to corporate enterprise as a whole. He finds that corporate saving was less in the 1930's than in the 1920's, but fails to point out that since this fact was due to low profits, it could be treated as *substantiation* of the stagnation thesis. He also shows that net savings of non-financial corporations was a lower share of capital requirements in 1936-41 than in 1923-29. This fact might be explicable in terms of low profits in the older industries and expansion of relatively new defense industries, and in any case certainly provides no test of the *trend* in corporate savings. Finally, his inclusion of cash balances among capital requirements is surely not justified in this context.

III. *Need for Further Study*

There is room for much new work on the relationship between secular trends and unemployment. It may well be that the theory of economic development, and especially its econometric aspects, will prove the most rewarding field of economic research during the next decade. Further study of the "stagnation thesis" would be an important part of such research. What exactly does it mean? Does it mean declining rate of increase in gross national income at full employment, an increasing gap between the actual trend of gross national product and the trend at full employment, increasing amplitude of cycles (which must mean increasing intensity of depression, since full employment is always the upper limit), failure to reach full employment at cyclical peaks, or some combination of these concepts? Which of the

disproves the argument that inventions in the thirties were not of a sort that called forth large additions to the stock of capital.

[18] See, for example, Higgins and Musgrave, *op. cit.*, pp. 146, 153.

"pillars" are true secular trends, which institutional or cyclical factors? What is the precise relationship of secular stagnation to business cycles and long waves? What is the relative importance of cyclical and secular factors in the explanation of actual unemployment? What kind of empirical evidence, if any, would constitute proof or disproof? What is the relation of the thesis to estimates of the "deflationary gap"? How is it related to Keynes's theory of under-employment equilibrium, and to the economic development theories of Schumpeter, Löwe, Lederer, Sombart, Weber, Marx, and others? Just how do its policy and political implications differ from those of earlier analyses of unemployment? Such questions are very much worth answering; but they must be examined with very great care.

BENJAMIN HIGGINS*

* The author is professor of economics at McGill University.

Note by Dr. Terborgh

The editor of the *Review* has invited me to prepare, on short notice, a rejoinder to be published with Mr. Higgins's communication. Unfortunately, the pressure of other tasks does not permit me to undertake what would certainly have to be a long essay, for Mr. Higgins has laid about himself right lustily, raising a score of points for comment and reply. Unintentionally no doubt, he has garbled my position in a variety of ways, which an impartial reading of *The Bogey of Economic Maturity* will disclose. Under the circumstances, I shall have to let the book speak for itself.

GEORGE TERBORGH*

* The author is Director of Research of the Machinery and Allied Products Institute, Washington, D.C.

Note on Corporate Expansion Since 1940

I

A recent investigation of the financial statements of 150 manufacturing corporations has yielded significant information on the subject of corporation expansion since the war.[1] It has established the fact that most of the sudden expansion lies in the current assets and that the primary source of this expansion is corporate savings. Such internal expansion has far-reaching economic implications.

The sample is comprised of corporations licensed to operate in Texas. We believe, however, that this sample is representative of a major part of the entire manufacturing industry. The companies range in size from Sterling Aluminum Products Incorporated with average assets of $1,953,000 to the United States Steel Corporation with average assets of $2,032,248,000.[2] These corporations include the following manufacturing classes: (1) automobiles and equipment, (2) building material except lumber, (3) chemicals, (4) electrical machinery, (5) foods, (6) iron and steel, (7) machinery except

[1] Funds for the investigation were made available by the University of Texas Research Council.

[2] Average assets were computed on the basis of the four years 1940-1943.

electrical, (8) nonferrous metals, (9) oil refining, (10) paper and lumber, (11) rubber, and (12) transportation equipment. The assets of iron and steel, nonferrous metals, oil refining, and rubber manufacturers comprised more than 45 per cent of the total assets of their respective manufacturing class, and the total assets of the twelve classes comprised 31 per cent of the total assets of these twelve manufacturing classes. The national scope of these corporations is evidenced by the fact that 133 (89 per cent) of the companies were listed on the New York Stock Exchange.

Spectacular growth appeared from 1940-43 among the manufacturers of transportation equipment, automobiles and equipment, electrical and non-electrical machinery, each class having expanded by more than 60 per cent. All 150 corporations together expanded from $15,382,000,000 to $19,728,000,000, a growth of $4,345,000,000, or 28 per cent.

Current assets expanded from $6,105,000,000 to $10,254,000,000, an increase of $4,149,000,000 or 68 per cent. Ninety-five per cent of the growth in total assets was accounted for by the current assets. The breakdown of current assets revealed that most of the growth lay in cash, receivables from the federal government, and government bonds. Fixed assets remained practically unchanged over the period.

Current assets are a measure of liquidity and the economic effects of corporate liquidity are widespread. For example, corporations with high liquidity are in a favorable position to reconvert to civilian production without resorting to external sources of funds. This avoids expenses and delays ordinarily encountered in the capital market, and in turn tends to lessen the frictional unemployment prevalent in corporate readjustment.

II

The source of asset-expansion is either external or internal. Promissory notes, open-book accounts, capital stock, and long-term notes[3] are the external sources, while charges against income such as provisions for federal income and excess profits taxes, contingency provisions, reconversion provisions, and surplus provisions are the internal sources, otherwise known as corporate savings. It is interesting to observe the shift from traditional external instruments to the savings devices.

Short-term instruments comprised of promissory notes and open-book accounts grew by $923,000,000 during this period; this is equivalent to 21.2 per cent of the growth in assets. However, the long-term instruments were less active. Common stock, for instance, increased by only $78,000,000 while preferred stock actually decreased by $149,000,000. Long-term notes increased by $200,000,000. Taken together, the three long-term instruments showed a net increase of only $129,000,000, just 3 per cent of the growth in assets. Obviously, manufacturing corporations have not expanded through the issue of long-term instruments.

Provisions for federal income and excess-profits taxes were $1,117,000,000 greater on December 31, 1943, than on December 31, 1940. Contingency

[3] Bonds and other evidences of debt with maturities exceeding one year.

provisions increased by $161,000,000 and reconversion provisions by $293,000,000. Earned surplus increased by $1,071,000,000. The growth in short-term savings, provisions for federal income and excess profits taxes, were equivalent to 25.7 per cent of the expansion in assets and the growth in long-term savings, including contingency, reconversion and surplus provisions, were equivalent to 35 per cent of the asset-expansion. Long- and short-term savings combined comprised 60.7 per cent of the asset-expansion, and external and internal sources together accounted for 84.9 per cent of the asset-expansion. The balance of the asset-expansion was widely disseminated among less significant accounts such as property and sales tax accruals, wage and commission accruals, dividends declared but not paid, miscellaneous reserves, capital surplus, deferred credits, etc.

This shift in the source of corporate expansion since the war has thickened the underlying security of long-term debts, which has helped to drive bond prices up and cause a veritable epidemic of refunding at lower interest rates. Preferred stock is affected in much the same way as bonds. Increased corporate savings, along with a contraction in the supply of preferred stock, has caused the remaining securities to bring a premium in the market, which in turn has motivated extensive redemption of such securities at lower dividend rates. Common stock, however, is affected differently from preferred because it is the residual claimant to excess assets. Much of the asset accumulation is spilling over into earned surplus with the effect that book values are increased, market values are thereby stimulated, and common stockholders continue to benefit without interruption.

L. K. BRANDT*

* The author is professor of economics at the University of Mississippi.

Comments on the Economists' Opinion Survey

On the basis of some experience in public opinion surveys, I should like to comment on the article by Professor James Washington Bell on "The Function of Government in Postwar American Economy,"[1] which reports on a survey of opinion among a group of economists. First I should like to comment upon the execution of the study and the interpretation of the results, and then upon the question of the adequacy of the methodological approach of Professor Bell and the committee for whom he speaks to the problem which confronted them.

The sampling methods used by Professor Bell and his committee are such as to make it necessary to be extremely cautious in interpreting the results obtained. No attempt was made to reach a cross section of the membership of the American Economic Association, or of the portion of the membership holding the Ph.D. degree. Instead, the questionnaire was sent to specialists in the field of public control who held the Ph.D. degree or "had made substantial contributions in the field," and to "past officers of the Association, nominating committees, and editorial boards since 1935."

One of the findings suggested by the survey was that the first group,

[1] *Am. Econ. Rev.*, Vol. XXXV, No. 2 (May, 1945), pp. 422-47.

specialists in the field of public control, show unusually strong support for government operation of a variety of projects. As for the second group, economists who have reached the degree of eminence represented by responsible positions within the American Economic Association may be expected to be, on the average, older men. Other work has indicated that there is among economists a negative correlation between age and acceptance of Keynesian economics; it seems reasonable to suspect that age is correlated with a variety of economic opinions. In other words, the sample cannot be taken as representative of all economists. It is composed of representatives of two distinct groups each of which differs to an unknown extent from other economists.

Additional difficulties are attendant upon a response from only slightly less than half of the sample (60 of the 125 questionnaires mailed were returned and tabulated). The replies received may or may not be fully representative. At best, results obtained from a sample of 60 interviews must be handled cautiously. In this instance, only if a very large majority of the sample vote the same way on a given proposal is it possible to predict with any confidence that a majority of all economists would vote the same way under the same circumstances.

The results of many of the individual questions must be interpreted with additional reservations because they suffer from such weaknesses as the following:

1. *Loading.* Several of the questions are so loaded that the replies should be thrown out altogether. Question 32, for example, inquires whether or not the respondent is in favor of having the government "Prevent labor abuses"! Who is not anxious to have "abuses" corrected? Students of public opinion have discovered that the framing of questions in such a way as not to bias the replies is a delicate business. By asking a question in one way instead of another it may even be possible to obtain diametrically opposite results. Little confidence can be placed in replies to questions containing such heavily loaded words as "abuses."

2. *Unsatisfactory arrangement of questions.* The relation between different parts of the same question is not always clear. For example, in answer to Question 8, only 21 economists voted in favor of having the government "Limit size of large incomes," but 51 voted in favor of limiting the size of large incomes "by progressive taxation." The difficulty seems to be a confusion between measures and the reasons for the measures—between the desirability of progressive taxation and the use of progressive taxation as a means to limit incomes. The economists might better have been asked if they accepted the limitation of incomes as an objective for the government, and only those who voted "Yes" should have been asked about the means to attain it.

3. *Too many respondents not voting.* There are a number of questions to which a large proportion of the respondents did not reply. On Question 26, for example, the vote was 24 to 21 with 15 not voting. It is not safe to assume that the 15 would have voted in the same proportions as the others if they had been questioned further. The interpretation of the results must await an explanation of why so many did not vote. Was it because they did

not feel informed about the question, or because they objected to its phrasing, or did some other factor restrain them?

4. *Broad generalities.* A few of the questions are generalities so broadly stated as to miss any real differences of opinion which may exist. Question 14 asks whether the government should "Prevent operation of private monopolies and conspiracies in restraint of trade (except for ones specifically exempted by legislation)." The interesting aspect of the results is that two economists actually voted "No." The question misses the real differences among economists as to what can and should be accomplished by the antitrust laws.

One final point about the execution of the study: the column headed "Comments" is very nearly useless for the reason that it does not distinguish among different types of comments. One comment may be a reservation, another an objection to the phrasing of the question, a third a fuller discussion of the problem involved, yet all are added together to give a single meaningless total.

The method adopted by the committee to measure quantitatively the extent of agreement among the economists can serve only as a very rough measure. The committee defined a certain ratio of "Yes" to "No" answers as indicating substantial agreement and found agreement thus defined on 62 per cent of the questions asked. The difficulty with this procedure, of course, is that the per cent of agreement depends on what areas are covered and how the questions are phrased. The committee, if it had chosen, might have asked only controversial questions, or only noncontroversial questions. It seems that it asked 62 per cent noncontroversial questions.

The committee started its work with the hypothesis that an economist is, within his field, a rational being little influenced by "emotion," and that, therefore, it is probable that a consensus among economists exists, which consensus the committee set out to discover. Setting aside the question of how rational the economist is within his field, we are dealing here with an area which is not only economic but also political. The study of the formation of political opinions has shown that nonrational factors are of very great importance. It is incautious to assume that the opinions of economists in this area are wholly rational. The committee would be on safer methodological ground if it set out to discover the extent to which the views of economists on questions of public policy can reasonably be attributed to scientific knowledge before it advocates the acceptance of those views by the government.

If the committee intends to proceed further with its investigation, there are several areas which I should like to suggest for exploration. In the first place, the factors which tend to divide economists might be investigated. It would be a fairly simple matter to obtain factual data on a few such variables as age, sex, income level, fields of interest, and type of employment from the respondents to any future questionnaire, and then to prepare simple correlations to discover the extent to which these factors are related to politico-economic opinions.

By going one step farther, a few simple questions could be asked designed to get at the basic political attitudes of the respondents. For example, a question could be asked as to whether the economist preferred Roosevelt or

Dewey in the last campaign. No doubt economists would be found of many shades of political opinion. It might be found, however, that on certain questions of public policy economists of all shades of opinion tend to agree.

To investigate the area fully it would be necessary to obtain data comparing the opinions of economists with those of other segments of the population, since it is not very meaningful if economists agree when everybody else is also in agreement. The most satisfactory procedure would be to ask the same questions both of a sample of economists and of a cross section of the population. The expense of such an undertaking would probably be prohibitive, but it should not be difficult to make arrangements to ask economists some of the thousands of questions on which the country has already been polled. The answers of the economists and the general public could then be compared; any differences should prove interesting in themselves. To segregate the views peculiar to economists as economists, however, it would be necessary to investigate the extent to which the economists' opinions are different from those of other persons with the same age, sex, income, social position, etc. A final step would be to investigate the reasons why economists have come to hold the views which they entertain. Armed with data in this area it would be possible to point out political questions concerning which economists, as a result of their special training, have reached conclusions different from those of the general public.

If the views expressed in this communication have been critical of some of the methods used by the committee, let me make amends by emphasizing that the results obtained are extremely interesting and can provide a very useful foundation for further investigation. The fact that the committee was willing to experiment with a technique new to economists in an attempt to be of service to the community is a sign of a sense of social responsibility which can be regarded only with respect.

JOHN B. LANSING*

* The author has been associated with the Division of Program Surveys in the Department of Agriculture. The opinions he expresses are his personal views.

The Incidence of the Corporation Income Tax: A Reply

In a recent article by Mr. Richard Goode[1] the conclusion is reached that the federal corporate income tax probably exerts a negligible effect upon the price level. On the basis of this conclusion, it is suggested that the tax is not shifted. With certain reservations, it may be agreed that the corporate income tax does not produce higher prices. It does not necessarily follow from this, however, that the tax is not shifted.

The federal corporate tax, in its present form, imposes a substantial levy on all corporate income, but provides only partial recognition of losses—either of operating losses or of capital losses. Thus, the effect of the tax is to increase the risk of all investments where the offsetting of losses is uncertain. As a result, the flow of investment tends to be impeded and the supply of capi-

[1] "The Corporate Income Tax and the Price Level," *Am. Econ. Rev.*, Vol. XXXV, No. 1 (Mar., 1945), pp. 40-58.

tal to be reduced. This reduction in supply of capital tends to raise the marginal productivity of capital and to lower the marginal productivity of labor and land. In this sense, some part of the tax tends to be shifted, in the long run, to workers and landowners. This shifting, moreover, is not dependent on any change in the *general* level of prices.[2]

As Mr. Goode suggests (p. 50), this conclusion is subject to qualification. The tax, through its effects on both investment and saving, may influence the level of national income. The level of national income, in turn, may affect the return to the factors. Thus, the ultimate effects of the tax may differ from its immediate effects. Any conclusion as to whether the tax, on balance, influences income in the direction of expansion or contraction depends upon the character of the fiscal policy which it is assumed would be adopted in the absence of the tax.

The income effects of the tax, however, do not necessarily alter the conclusions regarding its effect on the return to capital. Because of the fact that the tax results in a relative scarcity of capital, the rate of return to capital would be higher, at any level of income, than would otherwise be expected *at that level of income.* In this formal sense, the tax would be shifted regardless of its effect on national income.

It is true that if the tax were expansionary, the increase in return to capital resulting from the increased income would offset, wholly or in part, the direct effect of the tax on the return to capital. On the other hand, if the tax were deflationary, as seems more likely, the income effect would accentuate the direct effect of the tax on the return to capital. Or, if the deflationary effects of the tax were offset by other elements of fiscal policy designed to stabilize the economy, the tax could be said to have no net influence on national income. In that case, its influence on the return to capital would be confined to its direct effects, and at least some degree of shifting would result.

Mr. Goode touches on this argument when he states (p. 50) that the corporate tax would "limit the capital available to corporations." But he passes over the point with the conclusion that a restriction in supply of capital would not necessarily produce an increase in the general price level. He ignores any possible relation between a reduction in supply of capital and the shifting of the tax *via* changes in the marginal productivity of capital.

HOWARD R. BOWEN*

[2] Professor Boulding suggests, also, that a profit tax may reduce the supply of enterprise. *Am. Econ. Rev.*, Vol. XXXIV, No. 3 (Sept., 1944), pp. 567-72.

* The author is economist for the Irving Trust Co., New York.

The Incidence of the Corporation Income Tax: A Rejoinder

Mr. Bowen's note raises again the question as to what "shifting" a tax means. Admittedly, the concept of shifting and incidence is ambiguous. Reasonable clarity requires that all who speak of shifting specify *what* is shifted *where* or *to whom* and *by what process.* It might be still better to discard the terminology entirely. In the article to which Mr. Bowen refers I centered attention on the possibility of shifting through higher commodity

prices, because this seems to be the process referred to in most recent discussions of shifting of the corporation income tax. Mr. Bowen appears to accept the conclusion that the corporate tax is unlikely to result in a higher general level of commodity prices, but he believes that shifting may nevertheless take place through changes in the rate of return on capital.

Mr. Bowen suggests that the corporate income tax may so increase reluctance to invest that the amount invested will decrease and consequently the marginal productivity of capital and rates of return on capital (before tax) will be increased *at any given level of national income*. Granting for the sake of discussion the premise that the tax will significantly impair willingness to invest, the Bowen conclusion does not seem necessarily to follow.

If the propensity to consume did not change and the government did not intervene, income would fall to the level consistent with the amount of investment forthcoming in the light of the new attitude of investors. I should suppose that under those conditions the rates of profits and interest and the relative share of capitalists in national income would be those consistent with that new amount of investment and that new level of income, whatever the explanation of their existence.

If, on the other hand, the propensity to consume rose or offsets to saving other than private investment increased because of government action, national income might be maintained in the face of decreased private investment. Under these conditions, it might well be that in the long run the rate of profits would be higher than it would be with the same income and more private investment. It is not clear, however, that the total amount of profits and interest and their relative share in national income would be enlarged. It would be an open question, moreover, whether to attribute the change in rate of profits to the corporate tax or to the change in the propensity to consume or to the government program.

The development described might be called "tax shifting," although the concept certainly would be more subtle than that ordinarily used. Probably all will agree that the effects of the corporate income tax and alternative sources of revenue on national income are more important than "shifting" in any formal sense, however defined.

RICHARD GOODE*

* The author is at present an economist in the Division of Tax Research, Treasury Department, Washington, D. C. The opinions expressed are his personal views.

The Economics of the Pacific Coast Petroleum Industry: Reply to J. A. Loftus

In the September, 1945, issue of this *Review* Mr. John A. Loftus, describing my analysis of the Pacific Coast petroleum industry, makes certain comments which should be corrected.[1]

(1) He suggests that not enough significance was attributed to concentrated control of oil transport facilities on the West Coast. He overlooks my

[1] Review of *The Economics of the Pacific Coast Petroleum Industry, Part 1: Market Structure, Am. Econ. Rev.*, Vol. XXXV, No. 4, pp. 727-30.

explanation that in California the geography of production and refining is such that concentrated control of transport is less important to pricing than elsewhere.

(2) He characterizes my remark that the costs of oil production are not very closely related to price as indefensible, but entirely neglects the context which defended this remark. The thesis he criticizes can be defended at length statistically and theoretically.

(3) He suggests that too much attention was devoted to differential qualities and gravities of crude, because they are "trivia." These differentials are not trivial in intepreting California crude prices, costs, and rents. Mr. Loftus apparently relies on an unfounded parallel to areas where these differentials are slight.

(4) His statement that no attention should be paid to individual oil fields, because they are geologic rather than economic units, overlooks the locational aspect of the pricing problem.

(5) His implicit contention that the allegations of antitrust indictments to which defendants plead *nolo contendere* should be accepted as statements of fact (to do otherwise he alleges is unsophisticated) is naïve indeed. Pleas of *nolo* may be entered for a variety of reasons other than the defendants' guilt of all offenses alleged.

(6) Mr. Loftus refers to the "real relationship of United States [oil] prices and world prices" as something of which he is aware and I am not. This opinion is unsupported.

(7) He objects that 2-cent freight is not one-quarter of the 6-cent Texas wholesale gasoline price; it is 25 per cent of the 8 cent California price to which reference was intended.

Finally, he directs some criticism at the chapters or volumes I did not write on (a) world oil, and (b) conservation. The omission was deliberate, and, I believe, justifiable from the standpoint of my study; in any event, I made no pretense of treating these topics thoroughly. Generally, I suggest that analysis of the Pacific Coast petroleum industry should not be assessed *a priori* in terms of its congruence with analyses of other areas.

Joe S. Bain*

* The author is associate professor of economics at the University of California, Berkeley.

BOOK REVIEWS

Economic Theory; General Works

Die Standortstheorie Alfred Webers: Studien über die Frage ihrer Gültigkeit und Fruchtbarkeit. By DR. ELISABETH NIEDERHAUSER. Staatswissenschaftliche stud. Vol. 14. (Weinfelden, Switzerland: Neuenschwandersche. 1944. Pp. 208. Sw. fr. 14.50.)

Dr. Niederhauser's competent study deals with the question of the validity and fruitfulness of the location theory which Alfred Weber first published in 1909. To this end, she first considers the place of Weber's theory in the general picture of location theory. She, therefore, critically summarizes the early reviews of Weber's work by Bortkiewicz, Schumpeter, Sombart and others. She then proceeds to the writers who have developed location theory further. These writers are grouped into those who basically develop Weber's theory, and those who fundamentally oppose Weber with a location theory based on general equilibrium. To the former group belong Predöhl, Salin and Ritschl. The latter group consists of Ohlin, Palander and Lösch, the three chief representatives of modern location theory. Of these three, Palander receives with no less than thirty pages the main attention of the author. Ohlin with four pages and Lösch with eight pages seem rather slighted.

The main purpose of the study is dealt with in its second part. The discussion of the first hundred pages showed that "it is always the same points which are the subject of discussion. These are primarily the questions of the nature and tasks of theory, its relation to reality, the limits of its validity, and the character of its explanations: whether the theory is causal or functional, static or dynamic, whether it is written from an accounting standpoint (privatwirtschaftlich) or from an economic standpoint. . ." (p. 96; my translation). To answer these points, Dr. Niederhauser applies the criteria developed by Max Weber and Eucken to Alfed Weber's theory. She thus finds that Alfred Weber deals with ideal types under competitive conditions, limiting himself to purely spatial problems. He disregards the general interdependence with other than spatial problems and considers only certain natural-technical conditions for locations of plants isolated from their market connections (p. 119). This summary is arrived at in the course of a lengthy chapter dealing with the validity and correctness of the theory. Of all criticisms of the internal consistency of Weber's theory, Dr. Niederhauser considers only one important and valid: "Weber's formulation of the results of transport orientation is inexact since it ignores the influence of the relation of the angles of the location-triangle on the position of the location, but draws conclusions from the weights alone" (p. 112; my translation).

However, her dismissal of the points raised by Bortkiewicz, Palander, Lösch and others does not seem quite justified. It is strange to read of Bortkiewicz's early criticism that Weber's model allows several possibilities and is inexact, that this may be possibly correct from a mathematical standpoint but is not decisive for the judgment of Weber's theory (p. 107). And the recurring criticism that it is illegitimate for Weber to assume prices as given is dismissed by stating that Weber has a right to his own assumptions, and that this kind of criticism affects not the validity but only the relevance of the theory. Variable prices are considered to belong to the ideal type of monopolistic economy to which Weber's theory is not meant to apply.

But evidently this is not quite correct and does not do justice to those critics who insist that general interdependence must be a part of the theory. The question does not seem to be one of competitive *versus* monopolistic assumptions, but rather one of partial *versus* general equilibrium assumptions. Since Weber deals not just with the location of one plant, but with whole industries, the assumption of given prices seems inappropriate and internally inconsistent with the rest of the theory.

One will have no quarrel with Dr. Niederhauser's estimate that Weber's theory was not only an epoch-making work at the time of its appearance but that even now, particularly in favorable cases, it may furnish good heuristic principles for empirical investigations. But I wonder whether, in her chivalrous attempt to be fair to Weber, she does not underestimate the contributions of Palander and Lösch. Particularly Lösch's contribution is done much less than justice.

W. F. STOLPER

Swarthmore College

Keynesian Economics. By MABEL F. TIMLIN. (Toronto: Univ. of Toronto Press. 1942. Pp. ix, 198. $2.75.)

Professor Timlin's volume represents a reformulation and expansion of portions of Keynes's analysis; drawing freely on the work of Lange, Hicks, Lerner, Robertson, and Ohlin. The fundamental statement follows Lange closely; the level of activity is explained in terms of three sets of interdependent functions: the Liquidity Functions, relating the rate of interest to the quantity of money and the level of income; the Multiplier Functions, relating consumption to income and the rate of interest; and the Investment Functions, relating investment to consumption and the rate of interest. Several pages are devoted to showing that, as defined in the *General Theory,* savings and investment are always equal, even when activity is confined solely to investment, solely to consumption, or solely to capital maintenance. Throughout it is made clear that the various concepts apply to a particular time period, which is defined in the same manner as the Week in Hicks's *Value and Capital,* although subordinate use is made of "models" in which contracts with the factors of production are made either before or after contracts for the sale of output.

The introduction is completed by a chapter devoted to the rôle of expectations, with special emphasis on their effect on the valuation of assets.

In the case of debts, for example, Professor Timlin considers that in the "orthodox expression" the present value of a bond is determined with reference to the size and number of annual payments, the principal amount involved, and "the" current rate of interest. For this is substituted a formulation in which the rate of interest is allowed to vary during every Week of the bond's life, a risk of default factor (differing each Week) is applied to the various payments and a coefficient of correction (also varying each Week) to each interest expectation, and an allowance is made for the marketability of the bond.[1]

Three chapters are devoted to a discussion of the factors determining the rate of interest. Perhaps the most original is that dealing with the relation of the interest-rate structure to general equilibrium under static conditions, which contains a description of an economy sufficiently thrifty to require a negative rate of interest as a condition for long-period equilibrium. The now generally accepted conclusion is reached that such an economy would suffer from chronic unemployment, as the "institutional minimum" rate of interest is clearly above zero. The analysis of the factors determining the rate of interest starts with the "orthodox" demands for money for "transaction," "finance," and "precautionary" purposes, which in combination make up the L_1 demand for money, following the notation of the *General Theory*. To this is added the L_2 demand, described as the demand for money as a store of value, to give "the general function which represents the total demand for money as a stock" (p. 67)—in other words, the Liquidity Function as a whole.

A second set of three chapters is devoted to the relationship between consumption and the level of income. After defining consumption, investment, and effective demand, the average and marginal propensities are developed at some length. An inverse correlation between the propensity and the rate of interest, it is argued, results from the fact that (1) increased rates cause capital losses and therefore make people less willing to spend; (2) increased rates induce people, in order to profit from the higher rates, to undertake saving now, which they had previously planned to do in the future; (3) increased rates make the distribution of income more unequal; and (4) higher premiums must be paid for additional saving if the disutility of increasing reductions of spending is to be overcome.[2]

The "logical theory" of the multiplier is developed in connection with the Hicksian Week in which foresight is perfect, so that complete and immediate adjustment "without time-lags" is attained. This is then contrasted with the time-consuming adjustments which take place in a supplementary model where foresight is less than perfect. The mechanism of the multiplier, which is de-

[1] The formulation is hardly definitive. Marketability also varies through time and a different default factor would seem to apply to payment of the final installment of interest and to repayment of principal. In addition, I would find more realistic a statement in which the rate of interest was kept separate from expectations regarding the value of money, rather than one in which they are combined.

[2] Points (1) and (3) are partially contradictory. If rising rates make *rentiers* richer, it must mean that the capital losses caused by the rise have been more than offset by the increase in interest payments; but this would mean that *rentiers* would be inclined to spend more rather than less.

veloped in some detail in connection with the Hicksian Week, has always seemed to the reviewer rather meaningless where perfect foresight prevailed. Surely perfect foresight includes a knowledge of Keynesian economics, so that if one additional unit of investment is undertaken, people will know immediately that income will go up by the value of the multiplier, without waiting for those receiving the proceeds of the new investment to contract to spend the increase in their incomes and so forth *ad infinitum*. If the adjustment is not instantaneous, what happens if the investment decision is made, not early Monday morning when there is still time for contracts to be adjusted, but late "Monday evening" as the contract markets are closing? But if it is instantaneous, then surely the sensible thing to do is for everyone to agree at once on at least the highest level of employment consistent with the underlying assumptions of the analysis, in which case there would not be any need to fuss with a multiplier. J. M. Clark long ago pointed out that, under perfect enough competition, there really would not be any point in bothering to compete; in the same way whenever there is a situation sufficiently perfect for the "logical theory" to apply, there really is not anything left for the theory to explain!

Finally, two chapters are devoted to the determinants of investment, completing the discussion of the fundamental equations; and the results are then gathered together in two chapters on the operation of the system as a whole, with a short note appended on the implications of the analysis. Starting with the process of valuation in the investment-goods industries viewed first from the side of supply and then from the side of demand, Professor Timlin discusses the schedule of the marginal efficiencies of capital and the structure and characteristics of the investment functions. The various concepts which have been developed are then shown to provide a solution for the systems as a whole, while the repercussions on the solution of changing values, especially alterations in the quantity of money, are also set forth. The final structural chapter is devoted to setting out the connection between the functional relationships as developed and orthodox equilibrium theory—with particular reference to the determinants of the level of employment. This is done, first, in connection with the stationary state, next in connection with an equilibrium whose stationariness cannot be maintained, and finally in connection with a model in which factor sales contracts are made before output sales contracts.

Some of the tools provided by the volume have been defined in such a way as to make them less useful than could be wished. To take a small but rather startling example, *net* investment is defined so as to include "any activity in the investment-goods industries which is the basis of an issue of new securities or an increase in the value of old ones" (p. 92). These words seem clearly loose enough to include in *net* investment refunding of an existing issue with new securities or even speculative rigging of the market, which is hardly a part of what Professor Timlin would want to characterize as investment.

In general Professor Timlin deserves praise for providing us with a straightforward and workmanlike statement setting forth and in many cases synthesizing the existing body of Keynesian analysis. The reviewer, however, ventures the opinion that the volume will not greatly advance our insight into the

operation of our economic system, although he warns the reader that he has been diverted during the war to other activities, so that his recollection of the state of existing doctrine may be greener than it should be.

HENRY H. VILLARD

Washington, D.C.

The Wealth of the Nation. By H. CLYDE FILLEY. (Lincoln: Univ. of Nebraska Press. 1945. Pp. xiv, 174.)

In writing his little book, *The Wealth of the Nation,* Professor Filley has attempted to translate economics into terms comprehensible to the layman, and he has aimed to do this in such a way as to educate the layman in an intelligent approach to the economic problems of the modern day. This is a formidable task. To carry it out successfully would require the combined abilities of the expert in modern economic theory and in the writing of good popular literature. If to this could be added a judicious mind, with the disinterested objectivity of the keenest of philosophers, it would be so much the better. It is no reflection on Professor Filley that he is none of these; few of us are so qualified. It is unfortunate, however, that Professor Filley seems to be unaware of the magnitude and requirements of the task he has set for himself.

Professor Filley says of his book that it "contains little that is new. It merely assembles in one place concrete data which support well-established economic theories." If such an assemblage were well selected and coördinated with economic analysis, it would be a truly creative job; this reviewer would hail such a work joyfully, whether or not it contained anything "new" in a narrower sense. But any book purporting to relate modern problems to the fundamentals of economic analysis should certainly contain something of the newly ripe, or—to use Professor Filley's words—the newly "established" contributions to economic thought, that is, the contributions made in the twentieth century. These are sadly lacking. And if Professor Filley's book contains little that is new, it contains much too much that is old. The theories and concepts drawn upon as the background of his work are those which were entrenched in the textbooks a generation ago; only a few of these remain "established" today. For whatever reason, he has failed to separate the wheat from the chaff. (For example, Boehm-Bawerk would find much of his analysis of "capital" both familiar and congenial; modern economists so divergent as Knight and Keynes would not infrequently shudder, and at the same passages.)

Professor Filley is conservative not only in his use of economic theory, but also in his method of presentation. He has not succeeded in escaping the shackles of textbook definition of such concepts as "factors of production," "wealth," and "income," all of which are presented in a crude form—no doubt for purposes of simplification. A book for laymen would certainly be more successful if it began with something other than definitions. This is in itself a minor criticism. However, these initial definitions as presented by Professor Filley are part and parcel of the deficiencies in the analysis underlying his

whole book. If he had managed to strike out more boldly at the beginning, the entire work would have gained accordingly.

Finally, Professor Filley's book is characterized throughout by a moralistic brand of conservatism relating to both public policy and private behavior. Thus private as well as public thrift is extolled in the good old Calvinist tradition; and a rigid gold standard is advocated on the grounds that gold as a substance has a "high intrinsic and relatively stable value" and that gold "has been used for money for about 5,000 years," etc. Examples of this type of argument could be multiplied many times. Perhaps Professor Filley is right in many of his judgments, but his arguments do not prove his conclusions and few marginal opinions would be swayed to his position.

It is not easy to discover how far the deficiencies in the analytical background of this book reflect inadequate knowledge of the content of modern economic thought, how far they reflect the conservative tenor of Professor Filley's approach to policy issues, and vice versa. The fact remains, however, that the single most consistent characteristic of his work is a conservatism that lacks imagination and that binds the writer to old concepts, old methods of presentation, old points of view, right or wrong. Professor Filley is to be commended for what he attempted to do; but he will have to cut some of the chains that bind him before he can accomplish it.

Mary Jean Bowman

Lexington, Ky.

Economic History

Beatrice Webb. By Margaret Cole. (London: Longmans, Green. 1945. Pp. 197. 10*s*. 6*d*.)

Of all the personalities which have contributed to the development of the social sciences into recognized fields of study, perhaps none is more distinguished than Beatrice Webb. In the biography under review, Mrs. Cole, for nearly thirty years her intimate friend and fellow-worker in the Fabian Society, proves that although one instinctively couples Beatrice with her husband, Sidney Webb (or as A. G. Gardiner has described them "two typewriters clicking as one"), each partner enriched this intellectual alliance with a particular talent: she that of interviewing, he that of summarizing.

A number of individuals played important rôles in Beatrice Webb's transition from the drawing rooms of fashionable London to the arduous investigations of dock labor, the sweating system, the coöperative movement, trade unionism and Soviet Communism. Herbert Spencer was the greatest intellectual influence in Mrs. Webb's early life and it was to him that she owed the delight in collecting and verifying facts upon which her works were solidly founded. Her father, for whom she served as confidential secretary, trained her in methodical oganization and taught her to regard money as a business man treats it. This knowledge was of great value to Mrs. Webb in later life as she never suffered from timidity in action or from addiction to institutions and programs after they had outlived their usefulness.

Charles Booth, one of the first nineteenth century investigators to start without *a priori* assumptions about economic laws, introduced Beatrice Webb to the underlying causes of poverty, and stimulated her to evolve the techniques essential to the comparative study of social institutions. The articles emanating from this collaboration led to Mrs. Webb's appointment in 1905 as a member of the Royal Commission on the Poor Law, and to her drafting of the famous Minority Report which assumed, as did the recent Beveridge Report, the basic need for full employment, state medical services and a national minimum wage. This Minority Report ranks as one of the outstanding government documents of the century and was rewarded by the honorary doctorate given to Mrs. Webb in 1909 by Manchester University. It strikes to the very heart of the problem by, in the words of Mrs. Cole, "asserting the need for prevention, rather than cure, of poverty, for finding out why people become destitute, rather than attempting to relieve their destitution once it has become a fact." In addition, it asserts that the whole nation is responsible for poverty, and that the whole nation must actively search for a cure.

These and other intellectual excursions are faithfully recorded by Beatrice Webb in the volume titled *My Apprenticeship* and in the forthcoming *Our Partnership*. They are also to be found in her sixty-year diary which, when it reaches publication, will undoubtedly rank as one of the significant records of this age.

Perusal of Mrs. Webb's memoirs and the volume at hand clarifies her share in the establishment of the London School of Economics, to this day often referred to as "The Webberies"; her molding of the rising generation and especially certain members of the present Labor government; her formation of the Fabian Society which exercised a profound influence on British social thought and practice for more than half a century. More than that, these writings show Mrs. Webb's exceptional combination of such characteristics as disinterestedness, avoidance of public recognition and praise, cheerful acceptance of attacks and criticisms, a strong sense of the practical, and fundamental consistency and originality. They reveal, too, her ability to get on with all classes of people ranging from cabinet ministers to tailors' apprentices and colliery workers. The manner by which she thought her way to a Socialist attitude toward life, long before she linked her life with Sidney Webb's, remains unique in English history, as does her faithful examination of human and institutional material. "What was grist to her mind she gathered, and in collaboration with Sidney worked it into a corpus whose individual parts, in purpose and arrangement as in style, are so individual . . . that one can scarcely read a sentence . . . of one of them without exclaiming, 'This is the work of the Webbs!' "

Mrs. Cole's tribute to one of the greatest women of our generation, remarkable for her practical as well as for her intellectual courage, indirectly stresses the vital need for the dedication of both British and American social scientists to the search for truth, and it supplies insight into the demands placed upon the researcher of time, energy and money—demands which are only partly met by endowments and grants in the two countries. The recital of Beatrice

Webb's personal triumphs in her study of abstruse materials to the end of improving man's way of life remains an inspiration for all individuals who advance and clarify the tenets of social science.

MARY E. MURPHY

Hunter College of the City of New York

National Economies

The Development of the Soviet Economic System. By ALEXANDER BAYKOV. Nat. Inst. of Econ. and Soc. Research, econ. and soc. stud. V. (Cambridge: Univ. Press. New York: Macmillan. 1946, Pp. xv, 514. $6.50.)

Dr. Baykov, who has been a serious student of the Soviet economic system practically from its beginnings, presents here a detailed, thorough and systematic account of its evolution up to the outbreak of the last war. The survey is based almost exclusively on Russian sources. While questions of interpretation are not alway resolved convincingly, the volume is even in tone throughout.

Dr. Baykov traces the development of economic policies and institutions in four successive periods, roughly defined by War Communism, the N.E.P., the First Five-Year Plan and collectivization, and the abolition of rationing. Every major sector of the economy is considered: industry, agriculture, domestic and foreign trade, public finance, credit and money, and labor. The survey, which is descriptive rather than analytic in emphasis, gives special attention to administrative organizations and procedures, including those for over-all planning. At the same time, a great deal of statistical and other information is presented on the development of the economy itself, particularly the production achievements under the Five-Year Plans. In reference to the question of controlling the quality of production, there is a brief and not particularly illuminating excursion into the theory of socialist economics.

Necessarily, in the absence of any detailed Marxian blueprint, the Soviet economic system evolved to a very great extent by trial and error. However, the study leaves the impression that by now a comparatively stable framework has been constructed, and that the Soviet planners have gone far in solving the technical problems of assuring a balanced expansion of the economy in accord with the aims of the leadership.

Dr. Baykov skirts indecisively the question of the formation of social classes which lately has received so much attention in this country. He expresses the opinion that the tuition law of September, 1940, was "designed to make it somewhat more difficult to receive secondary and higher education and to divert some of the school population towards Artisan, Transport and Industrial Schools" (p. 355), but he emphasizes at the same time the present and potential importance of social incentives as substitutes for material incentives in the U.S.S.R. (p. 360). Again, figures are presented to show that the personal holdings of government bonds and of savings deposits are on the average small in relation to the average annual wage of the Soviet worker

(p. 381), but the interesting question of the distribution of these assets is not considered. (According to a Soviet source,[1] 67 per cent of the total savings deposits as of January 1, 1937, were held by 10 per cent of the depositors.) Incidentally, the "personal salaries" (individual as distinct from occupational rates of pay) referred to as being introduced in 1938 (p. 342) go back many years, at least to 1928.

There are few points to question in this informative volume. Considering the Soviet government's protracted struggle against labor turnover, it does not seem entirely clear that the labor control legislation of June, 1940, was an emergency measure, as Dr. Baykov implies, rather than the result of the "normal evolution of the labor system" (p. 352). The removal of the controls with the passing of the war emergency, of course, would decide this matter. Also, Dr. Baykov's judgment that the Party purge of 1937 had a "beneficial influence on the development of industry" (p. 281) no doubt will provoke varying reactions, in view of the imponderables involved. However, the industrial production figures he presents for the year 1937 (p. 283) indicate that the *immediate* effect of the purge may have been decidedly adverse, since they show a very spotty record of fulfillment of the Second Five-Year Plan, and, more significant in this connection, a general and in some instances very marked underfulfillment of the annual plan for the same year.

In considering Soviet production achievements, Dr. Baykov rightly calls attention (pp. 164-66, 284-85) to some of the difficulties that arise in the interpretation of Soviet production series expressed in constant 1926-27 prices (gross industrial production, machinery output, etc.). There is some ground for believing that these series are subject to the same sort of statistical bias as often affect index numbers of production, where new components are introduced in the series or old ones change in importance. It should be observed that whatever bias is present in the Soviet index numbers of production also affects the corresponding figures on labor productivity which Dr. Baykov presents (*e.g.*, on pp. 344-45).

At the same time, Dr. Baykov's own attempt to deflate retail sales figures by deducting from them the gross receipts from the turnover tax (p. 260) leads to dubious results, since it does not allow for a variety of other factors affecting prices, including wage and productivity changes. It is doubtful, too, whether the growing importance of the state budget can even be "surmised" from the comparison of national income in constant prices with the budget total in current prices (p. 399-400). Finally, but not least important, different opinions may be entertained as to whether "economics textbooks" have as little to offer planners as Dr. Baykov argues (p. 462).

This volume should prove a very useful reference work for scholars in the Russian field. The joint efforts of the author, his translator and editors have not produced a very readable book, but the study should have a place in the growing number of courses offered in this country on the Soviet system.

ABRAM BERGSON

Washington, D.C.

[1] V. M. Batyrev i V. K. Sitnin, *Finansovaia i Kreditnaia Sistema SSSR.* (Financial and Credit System of the USSR) (Moscow, 1945), p. 75.

Inter-American Affairs—1944. Edited by Arthur P. Whitaker. (New York: Columbia Univ. Press. 1945. Pp. vi, 284. $3.25.)

This is the fourth annual review of the affairs of our American neighbors. The non-economic sections, contributed by five writers, cover the year's developments in the field of diplomacy and politics, Canadian activities, labor and social welfare, and cultural relations. These sections summarize a mass of information that will be of interest to the general reader as well as to the student of inter-American affairs.

Almost a third of the book is concerned with economic developments. New production facilities, developments in overseas and intra-American trade, and special features of transportation are covered by Miron Burgin. The exposition is balanced, and clearly reflects the writer's good grasp of Latin American economics. Mr. Burgin and Charles Carson then discuss the main aspects of Latin American banking and finance in 1944. This discussion is quite conventional, even to the extent of presenting the facts concerning Latin America's gold and foreign exchange holdings without the important qualification, which this reviewer has yet to see in printed form, that only about half of the total is available to meet balance-of-payments drains or extraordinary foreign payments under existing reserve requirements with respect to outstanding note and deposit liabilities.

The best section of the book, in the reviewer's opinion, is Sanford Mosk's brief treatment of the main currents of economic thought. As a new feature, this part of the book should serve the useful purpose of informing American readers about the thinking of Latin American economists concerning their own economic problems. As specialists have known for some time, that thinking, relative to the character of the problems involved, stands up better by comparison with our own than is generally recognized. Although covering a wide range of subjects, the Latin American economists placed major stress in 1944 on problems of inflation, industrial diversification, and the need for the continuation of exchange control over current transactions because of the high probability of business depressions in major countries such as the United States. Dearest to their heart, however, is the theme of rapid industrialization. The latter is regarded as the only road to economic independence, so eagerly sought because our neighbors to the south live mainly in a world of economic depression or global war, two circumstances for which little or not allowance is made in formal discussions of the gains from international specialization. Industrialization is also stressed because of balance-of-power considerations involving the two strongest states, Argentina and Brazil.

In emphasizing the need for industrialization, however, too little attention seems to be devoted to its probable impact on export efficiency, an important consideration since Latin America desires to industrialize with the aid of funds borrowed from abroad. This book, and others like it, could help to clarify thinking by placing more stress on the simple economics of industrialization. Latin America, being a high tariff and exchange-control area and temporarily fortified with sizable cash balances, is likely to succumb to the temptation to overindustrialize relative to its resources. Industrialization to date has been mainly in the light industries and consumer goods field, where the im-

pact on export efficiency has been small. But it will be a different story as the movement extends to heavy industry, where overindustrialization will only serve to slow down long-term progress by imposing unnecessary cost handicaps on the basic export industries.

Supplementary material in the appendices includes trade and financial statistics, bibliographical references, and a chronology of the year's outstanding events.

VIRGIL SALERA

Berkeley, California

La Restauration Economique de la Belgique. Prepared by Groupement d'Etudes Economiques. (Brussels: Baude. 1944. Pp. 177.)

This comprehensive survey of the post-war reconstruction problems in Belgium is a collective product of Belgian economists during the German occupation. The work had been undertaken in 1940 in utmost secrecy and concluded a few months before liberation; and the conclusions which the Belgian economists had reached at various stages of their discussions had been forwarded to the Belgian Government in London in the course of the war years.

The group—which assumed the name of Groupement d'Etudes Economiques —was formed, under the chairmanship of Henri Velge from the Louvain University, by six Belgian economic associations and institutions, the best known of which are the Société Belge d'Economie Politique (which had been represented in the group by Georges De Leener from the University of Brussels) and the Institute of Economic Research of the Louvain University (represented in the group by Léon Dupriez). Some officials of the Belgian Foreign Office and the Belgian Ministry of Economic Affairs, who were not exercising their functions during the war, were also members of the group.

The Belgian reconstruction problems in the immediate post-war period are reviewed in seven chapters dealing respectively with food and raw material supplies and imports; exports; monetary policy; fiscal policy; money and capital market; labor, wages, social insurance; and customs union with the Netherlands. Because of the Belgian currency reform, the most interesting part of the program is the chapter on monetary policy. How do the recommendations elaborated by the Belgian economists early in 1944 compare with the policies which were actually enacted in October of that year? To absorb excess purchasing power, the Belgian economists envisaged both voluntary loans and a "currency amputation" (exchange of notes, blocking, etc.); but, on balance, their preference went to the conventional methods, "more shaded and supple," rather than to the "unique" operation of blocking, "whatever may be its modalities." Sales of gold for purchases abroad and sales of government securities by the National Bank are viewed as the most important instruments of currency absorption, to be completed by qualitative control of credit and control of capital issues. "However indispensable a currency amputation may be, it will be necessary to proceed so as to avoid the brutality of this policy drawing the country into a grave crisis of deflation." In comparing

this program with the monetary policies which had actually been pursued, it is clear that the Belgian monetary reform has been both less pragmatic and more drastic than the Belgian economists envisaged before the liberation. So also has been the fiscal policy; there is, for example, no mention whatever in the program of such a capital levy as was imposed in Belgium in October, 1945.

On the other hand, the economists have been outspoken in their insistence upon a customs union between Belgium and the Netherlands to be established immediately after the liberation of the two countries. It is true that the Belgian and Dutch governments concluded in London, on September 4, 1944, an agreement providing for a common customs tariff and abolishing, as between the two countries, the collection of all customs duties. However, this agreement has not yet come into force.

The book is undoubtedly an interesting document of our time not only because it throws some light on the background of the Beligian economic and monetary policies, but also because it is a vivid illustration of the faith placed by the policymakers in the recommendations made by independent economists.

MIROSLAV KRIZ

New York, N.Y.

Statistical Methods; Econometrics; Economic Mathematics; Accounting

The Probability Approach in Econometrics. By TRYGVE HAAVELMO. Cowles Commission papers, new ser., no. 4. (Chicago: Univ. of Chicago Press. 1944. Pp. vi, 118.)

Mr. Haavelmo's monograph was first issued as a supplement to *Econometrica* (July 1944) and now appears in the new series of papers published by the Cowles Commission for Research in Economics. It is not easy reading even for a mathematician and the non-mathematical economist is likely to be scared off at a first sight of its pages. Patience is well rewarded, however, for Mr. Haavelmo's method of approach, whether accepted or not, should be known and appreciated by every economist. By astute and selective reading, and without going into the fine mathematical details, an economist should be able to get a general idea of Mr. Haavelmo's thesis and to profit from the many acute observations he makes on the side.

The main point of the argument is that "to apply statistical inference to testing the hypotheses of economic theory . . . implies such a formulation of economic theories that they represent statistical hypotheses. . . . The belief that we can make use of statistical inference without this link can only be based upon lack of precision in formulating the problems" (p. iv). Economists are reluctant to apply probability schemes in their work largely because they think such methods are not applicable (*e.g.*) to a time series where succession terms are not independent observations from a fixed "population." This ignores recent developments in statistical techniques which permit the

whole of a time series to be regarded as one observation (of *n* variables) from a joint probability law about which inferences can be made. Mr. Haavelmo demonstrated how this can be done on the basis of the Pearson-Neyman development of the theory of statistical inference. Marschak (*American Economic Review,* June 1945, p. 379) characterizes statistical inference in observing that theory is "in agreement with facts if it does not assign a high probability to occurrences which, in reality, prove to happen but rarely." In testing theories on the Pearson-Neyman method, we run two risks—the risk of rejecting an hypothesis when it is true and the risk of not rejecting an hypothesis when it is false. We can always make one or other risk as small as we like but not both risks together. Everything is a matter of compromise, of deciding what risks to run.

Mr. Haavelmo has useful things to say about the relation between economist and statistician, too seldom the same person. Statisticians can maintain that economists present their theories in muddled and unscientific forms to which the precise tools of statistics cannot be applied. With a wider appreciation of modern statistical technique, "it has now become possible for the economist to see exactly how to formulate his theories if he wants the assistance of a statistician. It is of the greatest importance that the economist himself should know their principles of formulation for then . . . he can at least ask intelligent statistical questions" (p. 60).

Every economic theory, Mr. Haavelmo insists, should be accompanied by a "design of experiments" for use in testing the theory, usually with recourse only to "the stream of experiments that Nature is steadily turning out from her own enormous laboratory." No economist should be allowed to get away with the plea that his theory does not agree with facts because he does not have the right kind of data: he should specify what are the right data for his purpose.

On the vexed question of the "permanence" of economic laws, Mr. Haavelmo points out that "our greatest difficulty in economic research does not lie in establishing simple relations between actual observation series, but rather in the fact that the observable relations . . . appear to be still simpler than we expect them to be from theory, so that we are thereby led to throw away elements of a theory that would be sufficient to explain apparent 'breaks in structure' later" (p. 26). We should always try to get down to relations more fundamental than appear on the surface in a particular (limited) set of facts. A beautifully simple relation may fit a given series of observations very well, but it may just as well be the accidental result of particular conditions as a fundamental relation applicable over a wider field. This is the difficulty in the familiar problem of fitting demand or supply curves to price-quantity time series. Mr. Haavelmo uses this illustration, and also Wicksell's theory of interest rates, with great effect (pp. 31-38).

One further instance of Mr. Haavelmo's skill at classification must suffice in this brief notice. In saying that certain variables in real economic life satisfy a definite relation, we do not mean that they do so exactly in all observations. As Mr. Haavelmo makes clear (pp. 55-59), there are two ways in which such a statement has meaning. In one case, we mean that the relation

would be satisfied *if there were no errors in the variables, i.e.*, if the individual observations are corrected for random variation. In the other case, we mean that the *expected values* (average values) of the variables satisfy the relation. The important point is that, with a given set of data, the relation obtained under one interpretation can be very different from that derived under the othe interpretation. Mr. Haavelmo illustrates with the relation between family expenditure (x) and family income (r). He shows that the relation when all families are assumed to act alike (no "errors" in the variables) is different from that applicable to the average family (expected values). Let us assume that expenditure is related to income for any family in a group by the following simple relation:

$$\log x = k \log r + k_0 + \varepsilon \qquad (k \text{ and } k_0 \text{ constants})$$

when ε is a random variation (in expenditure) distributed normally about zero mean and with standard deviation σ. If we eliminate the random variation and assume all families act alike, then we get simply:

$$x = e^{k_0} r^k$$

But, if we keep the random variation and relate expected expenditure (x) to income, we get:

$$x' = e^{k_0 + 1/2\sigma^2} r^k$$

We must, therefore, always be clear which interpretation we have in mind. For example, if we adopt the second interpretation, then we get a biased estimate of expenditure by using the first (and simpler) of the two relations above.

R. G. D. ALLEN

London School of Economics
and Political Science

Public Finance; Fiscal Policy; Taxation

International Monetary Coöperation. By GEORGE N. HALM. (Chapel Hill: Univ. of North Carolina Press. 1945. Pp. 355. $4.00.)

International Monetary Reconstruction. By MICHAEL A. HEILPERIN. (New York: Am. Enterprise Assoc. 1945. Pp. 109. 50c.)

These two volumes both fall in the category of *Common Man's Guides to Bretton Woods*. Both were composed with the laudable objective of educating public opinion in the whys and wherefores of international monetary reconstruction. Their value in this respect has not diminished by reason of the ratification of the Bretton Woods Agreements; a broad public understanding and an aroused public opinion in this country will continue to be essential to the successful working of the Bretton Woods institutions.

Both writers, while scrupulously presenting the arguments of opponents to the Bretton Woods enterprise, emerge as strong advocates of the plans

and both are at considerable pains to give the lay reader a sympathetic explanation of the complicated mechanics of the Fund and Bank and an insight into the rationale of their proposed operations. Professor Halm seems especially successful in this unenviable task and considerable space (141 pages) is happily accorded in his volume to the full text of the Bretton Woods Agreements and of certain of the experts' plans which were forerunners of the final document (notably the so-called Keynes and White plans).

In at least two respects one might have hoped for a different emphasis in the presentation of the material in these volumes. No convincing picture of the alternative to Bretton Woods seems to emerge from the discussion. Both writers briefly recount the circumstances of the collapse of the gold standard and effectively present the case against its restoration. But neither conjures up a vision of what the world would be like tomorrow in the absence of Bretton Woods, a vision in which turbulent exchange markets driven by gusts of "hot money" and the "old debbil" competitive exchange depreciation, might be less prominent than the growing monsters of totalitarian exchange control and manipulated over-valuation. A second unfortunate result of the allocation of space by both writers is that the International Bank for Reconstruction and Development is relegated to a very subsidiary position in the discussion. This is understandable in view of the fact that the operations of the Fund pose (or at least seem at first sight to pose) more intriguing questions of economic doctrine. Nonetheless, the Bank may have to rely heavily upon the goodwill and understanding of private investors in the United States and no opportunity should be lost to educate the public in its structure and purposes.

Both writers are at considerable pains to emphasize the compromise character of the agreement on an International Monetary Fund, but it does not emerge very clearly from their discussion wherein the compromise lies. It is easy to give the superficial impression that it was between the Keynes plan and the White plan, although actually the most basic issues between them were scarcely compromised in the outcome (*i.e.,* the issue of how large a commitment "surplus" countries should undertake and the associated technical question of whether or not new international currency should be created). Or it may be represented that the compromise was between differing doctrines involved in the controversies over free *versus* controlled exchange; fixed *versus* fluctuating exchange rates; or coördinated *versus* autonomous national monetary policies.

Actually it might be more accurate to say that the compromise was between what most countries would like to do and what they thought they would be capable of doing. The United States, viewing the world from the eminence of its "impregnable liquidity," is undoubtedly prone to expect foreign countries to do the impossible in the management of their affairs. The maintenance of multilateral clearing for current transactions and the renunciation of exchange control and exchange depreciation are obligations which most countries would readily assume if they thought they could afford to, but which too few can be sure they can afford. If, nonetheless, countries have proved willing to subscribe to the Fund agreement, it has been in part because the

Agreement was drawn in sufficiently flexible form, in part because the act of adherence to the Fund brought them a certain accession of external reserves, but also in large part because they have decided to compromise with their own fears for the future.

These fears relate so largely to the future rôle of the United States in world economic affairs that the success of the International Monetary Fund and of the gamble which foreign countries have taken in supporting it almost certainly depends upon how we play that rôle. If we can operate our economy consistently at a high level without the prop of a chronic export surplus, a large part of the fears will be dispelled. The sections in which Professors Halm and Heilperin adumbrate the policies appropriate to countries with "surplus" tendencies are therefore among the most important in their respective volumes, especially from the point of view of informing the lay mind. However, neither seems prepared to come to grips with the issue, as indicated by the fact that both seem willing to equate imports of goods and imports of securities as an answer to the problem. Professor Halm breaks a lance for appreciation of "surplus" currencies, but not very hopefully, and seems content to envisage continual lubrication of the Fund machinery by loans of dollars to the Fund by the United States. Professor Heilperin dismisses this latter course as a palliative but pins his faith upon the adoption by the United States of one of his "fundamental cures," among which he lists without qualification long-term loans to foreign countries. Nowhere is the reader brought face to face with the proposition that a policy of continuous foreign lending of new money (*i.e.*, lending in excess of amortization receipts) establishes a geometrically progressive form of subsidy to foreign countries.

Many institutions, and particularly those in the international field, suffer from inspiring too great expectations in their supporters, but in general Professors Halm and Heilperin express their hopes modestly and keep their subject in perspective. An exception is the chapter in Professor Halm's volume which seeks to demonstrate that the Keynes and White plans, and indeed the Fund Agreement adopted at Bretton Woods, all aim at developing an "International Reserve Bank" analogous to the central reserve banks of national monetary systems. Tempting as this analogy may be, it will scarcely bear examination and is calculated to confuse rather than enlighten.

"International Reserve Bank," like "international law," is a contradiction in terms. A *world* bank is conceivable within the framework of a *world* government and currency union, but this millenium is scarcely discernible even from the forward outpost of the Keynes plan. In the world of today and tomorrow, central banking functions are an attribute of national sovereignty, and monetary management can only be effective within a national currency area. Professor Halm's remark at one point in his discussion is only too apt: "The International Reserve Bank will be located, as it were, between the national credit systems in monetary no-man's land." It is true that Keynes proposed an institution with the power (limited) of currency issue, but one of the trappings of central banking should not be confused with its essence. And Professor Halm is certainly pressed to "stretch our terminology" (to use his phrase) when he seeks to demonstrate that "in a broader sense" the

International Monetary Fund as designed at Bretton Woods "creates" international currency.

It should be added that, while Professor Heilperin's contribution is limited by space to a rather straightforward exposition of the workings of the Bretton Woods institutions, Professor Halm ingeniously combines such an exposition with an instructive analysis of the economic problems which will be confronted, especially in the operations of the International Monetary Fund. He properly emphasizes the need for coördination of domestic employment policies in countries adhering to the Fund, and enters a plea for an expansionist approach to fiscal and credit problems qualified only by a realization that inflationary overexpansion would endanger domestic and international stability.

J. BURKE KNAPP

Washington, D.C.

International Trade, Finance and Economic Policy

America's Rôle in the World Economy. By ALVIN H. HANSEN. (New York: Norton. 1945. Pp. 197. $2.50.)

Professor Hansen presents his views on *America's Rôle in the World Economy* in three rather disconnected segments.

The first part is a clear and conclusive exposition of the reasons why the United States should coöperate with other countries in economic matters. This demonstrates the need for mutual aid in the economic field as an essential support for peaceful arrangement of political matters.

The second part is a series of chapters upon the various international economic organizations—existing or suggested—through which, it is urged, the United States should conduct its policies coöperatively. These are concerned with the International Bank for Reconstruction and Development, the International Monetary Fund, United Nations Relief and Rehabilitation Administration, the Food and Agriculture Organization, the International Labor Organization, the Social and Economic Council of the United Nations Organization, and a proposed International Trade Authority and International Commodity Organization.

The account of the purposes which each of these institutions are designed to serve and the ways in which they would carry on their work is persuasively written. But—with the exception of the chapters on the Fund—the analysis does not penetrate very far into the nature of their problems of operation. The achievement of the ardently described ends, while leaving each country comfortably free to follow its own bent, is made to seem easy. The vexing issues that always present themselves within international institutions, because of differences in the form of national economic systems, of vested interests and international politics, remain in the background of this panorama of purpose. It is not made sufficiently clear that if any or all of these organiza-

tions are to affect events, each participant will have to be willing to make painful adjustments and accept annoying restraints. The failure to instruct peoples in that fact, when they have entered into international institutions, has been costly. They have refused to accept the necessity. The difficulty of making an international organization operate effectively—as compared to the ease with which it can be created—is currently illustrated by the harassing obstacles faced by UNRRA and the muggy ineffectiveness of the early meetings of the Food and Agriculture Administration.

The third part consists of analytical comment, particularly on the relations between imports, exports, and employment. In this part, rather than in the first two, the dominant judgments of the author as to the bases of satisfactory economic relations between nations are evidenced.

They would appear to be:

First, that only when and if there is full and steady activity *within* nations can international economic activities be expected to thrive; for only then will it be easy and clearly beneficial for them to do business with one another.

Second, that therefore the first line of effort—both national and international should be turned toward the attainment of full and stable employment. Countries should give each other a mutual undertaking to do their utmost to achieve it. The operations of international organizations should be directed so as to help and not hinder national programs. In particular, no country should ever be compelled to undergo "deflation." The effort of each is to be aided by the extension of temporary aid through the International Fund and by a bold and sustained program of international investment. There is a latent supposition that the weight of debt will be carried by a torrent of production and trade that investment will create.

Third, that only when full employment is attained can imports be regarded as certainly beneficial and efforts to reduce trade restrictions succeed; in fact, the reasoning at some points implies that, until it is attained, such action would not be justified.

The foregoing attempt to abstract the basic economic argument of the book is offered with diffidence, for it is derived from dispersed comment. The reasoning does not progress cumulatively and it not summarized. It embraces so numerous a company of proposals, grants support simultaneously to attitudes that have usually resulted in restrictive national policies and to programs which are generously international.

The book attracts the mind and energizes the will. Its buoyant, positive spirit encourages the hope that international economic relations can be improved and extended. Its stress upon the necessity of directing primary effort toward the achievement of a high and stable level of employment, if international economic activities are to prosper, is a healthy one. Its reiterated suggestion that in shaping foreign economic policy—either nationally or internationally—full account must be taken of the need for and importance of the state of employment is a useful corrective to much writing in the international field which ignores the subject, or takes a satisfactory condition for granted. Its argument that international investment activity should be

guided by the need to increase productivity everywhere, and the real possibilities of doing so, is a needed offset for the caution of those who would confine it by closely reckoned computations of assured repayment.

But troublesome points of doubt are left in the mind when the last page is turned. The discussion at many places has the same quality of abstract oversimplification of reality which the author attributes to the customary argument of the economist in support of an international division of labor. The power attributed to the investment process to dissolve most problems of adjustment between nations has the quality of faith rather than of conclusive reasoning; the impression is given that if investment is conducted vigorously enough, it will not be necessary to reckon with the size of debts, the attitudes of the different participants in the production and investment process, the hindrances to redistribution of working effort between different branches of production, the tendency of groups to protect vested interest and subvert public expenditure to their own ends.

Finally, perhaps without intention, the presentation leaves the impression that trade barriers and restrictions are to be regarded as relatively of little importance in determining the state of international economic relations. This impression is produced particularly by the harsh strictures based upon the attitude of "classical" economic literature toward exports and imports. When, the assertion is made, full employment prevails, the economist's judgment is correct—a country derives benefits from the imports. When, however, there is unemployment, the instincts of the "practical business man" are correct; imports are likely to add to unemployment, while in contrast the nation benefits by exports as a way of distributing purchasing power. Thus, it is concluded that the business man "was realistic and essentially right in terms of the facts of economic life that daily confronted him. . . . the classical economist's emphasis on imports and his disdain of exports just did not fit the facts."

Surely, these comments are misleading. The economist has not shown disdain for exports. He has merely tried to insist that if, in the long run, a country is to derive the greatest possible benefit from its productive effort and trade with other nations, exports should be in a balanced relation with imports. He has assumed that if it was sound policy to enlarge the flow of purchasing power, other measures are usually to be preferred to excessive exports. Surely, also, business opposition to imports has often prevented trade that would have increased, not diminished, employment. And, still more surely, Professor Hansen would recognize that international investment activity cannot and will not be sustained and steady unless lenders presently secure a benefit in the form of goods and services, and not merely in the form of a stimulus to domestic employment.

Other readers may well derive a different conception and judgment of this independent and stimulating advocate's primer. The darts of thought are so swift, the lights and shadows in the reasoning are so flickering, that a reviewer may go astray in his wish faithfully to report its diffused argument.

HERBERT FEIS

Washington, D.C.

America's Place in the World Economy. Addresses delivered at the Fourth Series of Conferencs of the Institute on Postwar Reconstruction. Edited by ARNOLD J. ZURCHER and RICHMOND PAGE. (New York: Inst. on Postwar Reconstruction, New York Univ. 1945. Pp. xi, 250. $3.00.)

Never has there been so much discussion—public and private, oral and written, on the air and on paper, scientific and popular, practical and theoretical, in monographs and articles—as there is now on the necessity and methods of international economic coöperation and America's international economic policy. If things do not work out as desired, it is certainly not due to lack of awareness of the problems involved. A perusal in 1946 of the present volume, an excellent specimen of this kind of literature (containing papers that were written about two years ago), leaves one with the disquieting impression that history seems to unfold its pattern with supreme disregard for what the great majority of experts and men of goodwill say should happen.

The contributions to the present volume are well selected to give a rounded picture and are all on a high scientific level. Gideonse and Condliffe start the procession with a discussion of over-all principles of America's International Economic Policy. Gideonse pleads for a frank and open statement of policy. For example, "If we are going to make gifts, it is more desirable . . . to make them openly and consciously. It will be an economic as well as a political and intellectual disgrace to repeat the 'credit' blunders of the past postwar period" (p. 5). But if it is impossible to make gifts openly, is it better to make them not at all or to make them in the form of "credits"? Mr. Gideonse does not say. Mr. Gideonse calls for a "wise peace with Germany" without saying much what it should look like. But it was hardly necessary then. These were the days of the Atlantic Charter and not of the Potsdam Agreement.

Marcus Nadler speaks optimistically of post-war private trade financing (without paying much attention to the overridingly important political conditions), and H. D. White, of Bretton Woods. Herbert Feis discusses the prospects of Investment of American Capital Abroad. He calls for public and international development loans. Corwin Edwards sings his song against International Cartels—a formally flawless performance. Still he seems to me to exaggerate when he says that "private restrictions of international cartels are comparable in breadth and severity to the restrictions imposed by governments. . . . To attack governmental trade barriers and leave private trade barriers untouched would be illogical and ineffective" (p. 106). Illogical yes, but not ineffective, because private restrictions are less important and depend to a large extent on governmental support (tariffs). Redvers Opie's Critical Appraisal of the International Cartel reflects, as a useful antidote to the preceding paper by Edwards, the skeptical and somewhat cynical attitude of the old world.

W. H. Chamberlin gives an objective, sober, well-informed analysis of the chances and problems of American-Russian trade which should put the reader in the properly skeptical frame of mind for the following somewhat exuberant official estimates and expectations of Mr. E. C. Ropes.

The two papers by W. Y. Elliott and F. D. Graham on Anglo-American

Economic Problems supplement each other very nicely. Professor Elliott dwells upon the geopolitical setting of the economic problem and asks for British concessions to the United States in the field of raw materials and bases. On the whole, he is rather pessimistic for Great Britain's economic and political future, and its balance of payments position. Professor Graham, on the other hand, displays a most refreshing and unusual optimism. His paper abounds in statements which are exactly the opposite of prevailing views. "In Britain the rehabilitation of devastated areas and the supply of other urgent and long-starved consumers' wants can in large part be met with equipment and materials now used for purposes of war. Since the proportionate change-over to new equipment will be greater in the United States, our difficulties during the transitional stage seem likely to be much more severe than those of Britain" (p. 204). "The provision of full employment is solely a problem of maintaining the people's monetary expenditure" (p. 205). Is it really that simple? Is the problem of sectional unemployment and depressed areas entirely insignificant? Professor Graham is probably right when he says that for the United States the importance of international trade as a factor of prosperity is overrated. But he goes on to say, "This is true even for Great Britain . . ." (p. 206). Is it not a little misleading to say that "international trade, per se, has little bearing on the matter of employment"?

"In spite of much reputable opinion to the contrary, I do not think that the British have much cause for worry over their long-run economic and financial situation. Their total receipts in capital investment from abroad were never more than a small fraction (about five per cent) of their national income. . . . The British per capita productivity has been greatly raised during the war, and this will be a permanent gain. If the British fail to develop a greatly expanded export trade . . . they will be of course compelled to reduce the volume of imports. But this need not greatly affect their prosperity or ours. . . . The long-run picture for Britain is, in my judgment, not nearly as black as it is currently presented. It is, I think, not black at all" (p. 209).

These are strong words, especially for an ardent supporter of Britain and of American-British coöperation. I much sympathize with Professor Graham's point of view, and I hope he will soon find an opportunity to argue his case more fully and to support it by a detailed criticism of the prevailing opinion. It is, however, to be feared that the naked statement of his position, as presented in the present volume, will not carry much conviction.

The last two essays by Carlos Dávila and Clarence Senior deal with Latin Amercan and the Good Neighbor Policy.

GOTTFRIED HABERLER

Harvard University

Pioneers in World Order—An American Appraisal of the League of Nations. Edited by HARRIET EAGER DAVIS. (New York: Columbia Univ. Press. 1944. Pp. vii, 272. $2.75.)

Mr. Arthur Sweetser explains both the origin and the purpose of this book in the opening chapter:

Over a hundred . . . American citizens came together twice during the war at the Institute for Advanced Study in Princeton, once in 1940 and again in 1943, to attempt to apply the lessons of their past experience to present-day problems. A representative group were requested to prepare memoranda drawing out of that experience the highlights they would like to present to the designers of the "general international organization" to follow this war. . . . These memoranda . . . constituted a sound introductory starting point for approaching the next settlement in a logical and orderly way, and the authors were invited to revise them for publication in this book as a kind of testament from the past to the future. . . ."

Pioneers in World Order is thus a symposium, and it has the great merit that all the contributors to it have had some direct personal experience of international work on the subjects on which they write. As is perhaps inevitable, they have interpreted their mandates somewhat differently. Some have devoted themselves mainly to reviewing the activities of the League of Nations or the various bodies connected with it, pointing out the difficulties which presented themselves and describing the manner in which and the success with which those difficulties were faced. This is true in varying degrees, for instance, of Miss Sarah Wambaugh's chapter on the Control of Special Areas, Mr. Herbert L. May's chapter on Dangerous Drugs, and Mr. James G. McDonald's chapter on Refugees.

Others have concentrated rather on the lessons to which they wish to draw attention and the manner in which the United Nations should act in the light of these lessons. To some extent Mr. Sweetser adopts this line, though his constructive conclusions are tentative and take the form rather of suggesting possible alternatives than of firm recommendations. Mr. Huntington Gilchrist, on the other hand, concludes his very interesting chapter on Dependent Peoples and Mandates with a list of "Suggested Changes in the Mandates System" expressed almost in the categorical imperative. Dr. Boudreau, reviewing the International Health Work, gives a list not of required changes but of primary objectives of policy. Definite and clear-cut conclusions of this sort written by persons who have real knowledge and experience to back their views add greatly to the immediate value of the book and, moreover, render it more readable. But history is moving so fast today that these more constructive chapters may prove to have a more fleeting interest.

Professor Shotwell in his chapter on Security takes still another line. He propounds an historical thesis briefly, lucidly and cogently—an historical thesis which seems to me to be false. His contention is that the failure of states to ratify the Geneva Protocol of 1924 was the cause of the League's failure to maintain peace. "Therefore, when a few months later the MacDonald government was replaced by a Conservative government in Great Britain, the Protocol failed of ratification there. This dealt the fatal blow from which the Protocol and the League never recovered." France demanded the Protocol because she felt rightly that her security and the whole system of collective security under the Covenant were seriously jeopardized by the fact that the United States had not joined the League.

Professor Shotwell is arguing, therefore, that even without the United States peace might have been maintained. He may or may not be right. If

he is right, then it was surely not the lack of the Protocol, which was mainly concerned with defining an aggressor and an act of aggression, but the sudden abandonment of sanctions against an aggressor which had been formally defined and condemned to which the failure to maintain peace must be attributed. But in his whole chapter Professor Shotwell never mentions the Hoare-Laval scheme and seems to believe that the Italian sanctions did not succeed because no oil sanction was imposed. This is a popular thesis which has always received the ardent support of those who wish to direct attention away from the Hoare-Laval incident. I happen to have been in charge of sanctions at the time, and do not believe it has any sort of justification. Italy's reserves of oil were adequate for half a dozen Ethiopian campaigns. It would have made no strategic difference had she received no single ton of oil after the first measures for controlling her trade were adopted.

What was important in the history of inter-war security measures was the gloss on the automatism of the sanction clauses of the Covenant introduced in 1920. Though this gloss had no legal status, it was accepted as the basis for action and gravely weakened the whole system. The existence of that gloss was of far greater historical importance than the non-existence of the Protocol. Because of it governments felt justified in not acting up to their contractual obligations. And it was this failure to act under the Covenant, and not the inadequacy of the Covenant itself, that led to disaster. First the sanctions imposed were incomplete and then they were undermined.

Taking the volume as a whole, the history is careful and the lessons drawn, whether one agrees with them or not, are always interesting. There are one or two passages, however, where the historical judgment may be questioned. Thus, to quote one only, Mrs. Puffer Morgan in the course of a remarkably clear account of the Disarmament Conference says: "Success might have been reached had not progress been interrupted by the World Economic Conference in London." This statement reflects an *ex post facto* optimism which certainly very few of those who were working in Geneva at the time would share. The Monetary and Economic Conference should never have been convened when it was and certainly would not have been had advice in Geneva been sought; but the belief in Geneva was general that the Disarmament Conference was on the shoals before the London Conference ever met.

The chapter on World Economics is slight, but manages to give in a short compass the major issues of development up to and after the outbreak of war. It ends on a courageous note:

> The technical solution of the major economic problems—such as tariffs and other obstacles to trade—on which it [the Economic and Financial Organization of the League] was mainly engaged, depended ultimately on political decisions. If no agreement was reached, or if the recommendations of the Organization were not followed, reasons of national policy rather than defects of organization or technique were to blame. If economic coöperation is to be effective in the future, national sovereignity must be limited over large areas of economic policy.

Is this right? Is national sovereignty really limited if two or more states enter into a contractual obligation to do something sensible or not to do some-

thing foolish? Or can they never be trusted to be sensible? Perhaps the note is not courageous after all.

I have spoken above of chapters. But in fact the book is not divided into chapters. It consists of a Preface by Mr. Raymond Fosdick and seventeen essays by sixteen authors, Dr. Boudreau contributing two, and covers almost all the activities of the League. There is a certain fascination in watching these sixteen minds viewing the various facets of international life in retrospect and prospect. In general the conclusions drawn are along the lines of previous evolution—they are strictly lessons from experience. It is to be hoped that those who will have the opportunity of making new mistakes will, when availing themselves of that opportunity, also consider some of these lessons. Certainly the book is worth while.

A. LOVEDAY

Princeton, New Jersey

Business Finance; Insurance; Investments; Securities Markets

The Pattern of Corporation Financial Structure: A Cross-Section View of Manufacturing, Mining, Trade, and Construction, 1937. By WALTER A. CHUDSON. (New York: Nat. Bur. of Econ. Research. 1945. Pp. xiv, 146. $2.00.)

Corporate Cash Balances 1914-43: Manufacturing and Trade. By FRIEDRICH A. LUTZ. (New York: Nat. Bur. of Econ. Research. 1945. Pp. xiv, 128. $2.00.)

These studies are two of the series made under the Business Financing Project of the National Bureau of Economic Research.

The Chudson study is almost entirely of 1937 data, although occasional reference is made to other years, chiefly 1931. The figures are for "industrial" corporations as reported to the Bureau of Internal Revenue, which the Bureau uses in its *Statistics of Income,* but are from detailed unpublished tabulations. Tabular material used in this and other studies of the series will appear in a later publication of the Bureau to be entitled *Corporate Financial Data for Studies in Business Finance.* These "industrials" include manufacturing, mining, trade, and construction, and exclude the service, utility and finance industries.

By "pattern of corporate financial structure," Chudson means the ratios of the various major asset and liability items to total assets and to sales. Some other ratios, such as the current ratio, the interrelation of certain working capital items, and the ratio of invested capital to capital assets, are also included.

The result is a mine of ratio information which has more than ordinary value and interest because of the size of the sample and the presentation of data by subgroups. Thus, many of the ratios are not only reported for the same three score of minor industrial subgroups but also variations in the ratios are given for the corporations of different size (measured in assets) and as between

"income" and "deficit" corporations. The resulting ratios appear to have greater utility and typicalness than most samples which often show the influence of a few larger corporations, or nonhomogeneous companies. The consistency of the results which show regular gradations in the ratios for the corporations of various sizes in a given industrial division (as in Chart 3) with few erratic variations supports this impression of typicalness.

The conclusions, which are too many for enumeration and in any case must be read in relation to the interpretative background for full appreciation, include both the expected and the unexpected. Thus, findings confirm the generally held views regarding the positive association of profitability and corporate financial liquidity, as reflected in the current ratio, the relatively greater use of bank borrowing by small than by large corporations, and the decrease of both current assets and current liabilities to total assets with increasing size of corporation, but a greater decrease in the current liabilities. Unexpected are the findings that large and small corporations rely to about the same extent on trade credit to finance current ouput and that larger corporations have lower inventory turnover than small corporations. (The only exception to the latter is the retail trade group where size shows no clear-cut influence upon the inventory to sales ratio [Chart 3]). The explanatory hypothesis of increasing integration as size of business increases is supported by the correlation of size and the fixed assets to sales ratio (Chart 11). This latter point suggests that larger retail trade units may be showing an inventory turnover similar to that of smaller units in spite of the assumption of additional functions, such as wholesaling, warehousing, and occasional processing.

Chudson is careful to point out the absence of any normal or typical pattern for the economy as a whole but indicates that within the particular industry, size, and profitability groups there is a clustering of ratios (p. 6). He adds: "As criteria for credit analysis, therefore, financial ratios take on significance only when compared within a given class of concerns or when examined for the same group of firms over a period of time." The statement shows no espousal of the idea that the average ratio as a "standard" or "ideal" should be regarded as do certain writers. Where "central tendency" is found the credit analyst would, of course, do well to examine deviations for their possible relation to either solvency or profitability.

Some questions as to significance or utility of the data will occur to a reflective reader:

1. Where the ratio is based upon year-end balance sheet data which is subject to possible seasonal variation, *e.g.*, notably the relation of inventory and accounts receivables to sales and to total assets. The author mentions the point but it merits emphasis.

2. Certain ratios of doubtful utility, such as the ratio of notes payable (bank loans) to sales, surplus to assets, short-term debt to long-term debt.

3. The typicalness of certain average ratios where those ratios for the "income" corporations of the several industries appear to show a poor rank correlation with the similar ratio of "deficit" corporations. *E.g.*, inventory to sales (p. 19) as compared with what appears to be a superior rank correlation of inventory to assets (p. 23).

4. The representativeness of ratios so largely calculated for the single year, 1937.

The Lutz study of *Corporate Cash Balances, 1914-43,* is based on data from a limited sample of major well-known manufacturing (81) and trade (9) corporations which publish their financial statements and of medium-sized and small manufacturing (73) and trade (30) corporations whose figures are drawn from tax returns filed with the Wisconsin State Tax Commission.

As the title indicates, the study is centered on the movement of corporate cash balances for the period 1914-43. Comparisons are also made of total means of payment with cash balances of all manufacturing and all nonfinancial corporations reporting to the Bureau of Internal Revenue, 1926-36 (p. 10), as well as of total means of payment with cash balances of the samples of large and of small and medium manufacturing corporations, 1915-43 (p. 14). After this picture of cash fluctuations, an analysis is made (chap. 2) of the annual changes in the major asset items for the samples of companies to show the net absorption or release of "funds," which are intended to reflect the cyclical shifts toward and out of the asset "cash."

There follows (chap. 3) an artificial reconstruction of cash payments and receipts by inference from the balance sheet changes and the income statements of the sample corporations (described in Appendix C). By comparison of the year-end cash balances with this volume of receipts and disbursements (chap. 4) for the period 1919-39, the author arrives at relationship between the two during the "normal" 1920's from which ratio he computes an estimate of "transaction" cash figures or balances which he deduces are essential to handle transactions. Any remainder of cash is then labeled "free" cash.

The balance of the study is concerned with an analysis of this "free" cash, the liquidity ratios and cash balances, the liquidity of the manufacturing sample during the two World War periods and the trade sample over the entire period.

The chief impression gained is that the study supports that school which accuses "private enterprise of contributing to the stagnation of the economic system of holding excess cash balances (instead of investing them) and thereby counteracting the stimulant effect of deficit financing" (p. 2). This impression grows out of the emphasis on certain calculations which purport to divide corporate cash balances into "transaction" cash and "free" cash even though the author is careful to put quotation marks around these terms and never adopts for his own such allegations against business. The validity of such a concept of "free" cash hangs upon the theory that business should regard as normal cash balances a fixed percentage of current receipts or disbursements.

For anyone unfriendly to this "hoarding" theory, suitable points could be raised from the study itself. Thus, it could be argued that "need" for cash to care for "transactions" or payments fluctuates during the cycle because of the fluctuating turnover of receivables and inventories. When cash flows in more slowly from customers, relatively more cash on hand is needed to cover expected payments with a given degree of certainty or assurance. Lutz himself lists the five reasons (pp. 37-39) why business corporations cannot be

assumed to hold cash for expected future payments in a fixed ratio to those payments. Underemphasis plus the probable tendency to interpret most of these factors as "store of value" rather than "circulating medium" uses of cash will lend aid and comfort to followers of the business "hoarding" theory.

Whatever cyclical change there may be in liquidity preference it does not appear to be any more characteristic of business corporations than other sectors of society so far as comparative cash holdings show. The ratio of year-end corporate cash balances to the total nation's means of payment shows no cyclical movement (1926-41) for all reporting manufacturing corporations and only slight cyclical movement, if any, for all nonfinancial corporations (pp. 10-11).

Examination of the liquidity ratios (*i.e.*, ratios of current assets, quick assets, cash and marketable securities, and cash to current liabilities) for the sample of larger manufacturing companies supports the thesis that, in general, business shows greater liquidity in depression and less in prosperity (p. 61). However, the sample of small corporations gives no similar clear-cut picture (p. 64). Lutz concludes that these customary liquidity ratios are of little importance in a study of corporate cash balances but that certain other ratios, such as cash and cash plus marketable securities to cash payments, are the most important in measuring the liquidity of the aggregate of corporations (p. 66).

An examination of the figures in this Chapter 6 reveals how small the cash is in the total current position and how small its fluctuations are in relation to the fluctuation of the other current items. Similarly, Chapter 2 shows how tiny the cash changes are from year to year as compared with those of all other assets of large manufacturing companies so that the "inflow and outflow of funds" clearly is not an inflow and outflow of cash but expansion and contraction of liabilities which latter are not presented or discussed. Since cash and changes in cash are so small in absolute amounts, it is clear that they can be significant only as a relative matter. Since the aggregate of cash is limited and the holdings of business corporations are an almost constant fraction of the total, it raises the question as to whether such discussion of shifting into cash and back into operating assets is not definitely misleading.

Certain other secondary points will doubtless be questioned by various critics: some economists will query the inclusion of time and savings bank deposits in the total "means of payment" (p. 113); statisticians will question the validity of comparing year-end cash balances with total payments, since there might be some window-dressing of cash, the extent of which might vary cyclically, and they may have some doubts as to the adequacy of the samples, particularly of small corporations; and accountants will lift an eyebrow over a computation of total nonoperating cash expenditures that are inferred from net annual changes in certain balance sheet accounts such as plant or long-term debt (p. 110) or reference to "the 'net income' shown in the balance sheet."

HARRY G. GUTHMANN

Northwestern University

Public Control of Business; Public Administration; National Defense

Agricultural Price Control. By GEOFFREY S. SHEPHERD. (Ames, Iowa: The Collegiate Press. 1945. Pp. vii, 355. $3.75.)

Governmental efforts to fix *minimum* prices of farm products is the chief topic of this book, although a brief summary of wartime maximum price control is included. Mid-1945 was the ideal publication date for such a study for, with V-J Day past, the nation is faced with the promise we made in 1942, that the government will support the major portion of farm product prices at 90 per cent of parity for two years following the end of the war. The book performs three useful functions: it provides a ready summary of minimum price control experience, it contains a critique of methods and results, and it gives some concrete suggestions for the future.

Starting with the question, "Is it necessary or desirable to control agricultural prices at all?" the author answers affirmatively because in his judgment inherent features of agricultural production and consumption prevent free market prices from regulating agricultural production and consumption satisfactorily, particularly in the short run. Our minimum price control experience, for which we have paid such a "high tuition," should guide us, as a nation, in deciding what we want this price control to accomplish, in working out a logical program, and in carrying it through with the highest of managerial skill.

After reviewing the old Farm Board's operations, the author holds that the proper conclusion "is not that the Board, in trying to stabilize prices against fluctuations in supply and demand, was chasing after a will-o'-the-wisp that could never be caught; the trouble was rather that the Board did not have enough power to catch it. . . . The Board suffered from bad luck [started just before collapse of prices generally] as well as inexperienced or short-sighted management and lack of political support" [lack of enough funds] (pp. 35-36).

With reference to the experience after 1932, the author makes only incidental reference to the acreage restriction activities of the Agricultural Adjustment Administration which he holds were offset by higher yields on the remaining acres. The burden of several chapters is review of the Commodity Credit Corporation's program of stabilizing prices against fluctuations of production and of demand, and of raising farm prices over a period of years. This program worked well in the years of rising demand and drought-limited crops from 1933 to 1937. In late 1937, however, "it suddenly became apparent that the C.C.C. had been skating over thin ice" (p. 46), that the Corporation was on the road to "commit a farm board" (p. 78), and that over its whole operations from 1933 through 1941 it "had a happier history than the Farm Board, chiefly because of the more favorable economic circumstances in which it operated" (p. 78). These circumstances were its birth in a depression and the chance to ride the prosperity wave, two bad drought years to cut supplies, and finally, the wartime food demands after 1941 which bailed the government out of a bad situation.

In all "The most obvious and persistent error in the policies of the C.C.C. has been its attempt to raise the level of the prices of the 'basic' commodities over a period of years" (p. 80), by storage or loan devices. The author finds it difficult to appraise C.C.C.'s effectiveness in carrying out its other two objectives, partly because its operations were in a period of rising demand that ended with accumulated stocks in 1941, but chiefly because the perversion of the C.C.C.'s activities into an attempt to raise the level of farm prices so confused effects that no judgment on the accomplishment of other objectives could be reached.

With respect to efforts to increase demand, the author's findings are not encouraging. Subsidized domestic consumption exercises less upward pull on farm prices in the long run than in the short run. The cotton and wheat export subsidies cost the domestic consumers and the government together more than they raised prices to producers.

Turning to local stabilization activities, the author finds that marketing agreements for milk and fresh fruits and vegetables have improved the functioning of the local markets in which they operate but at the expense of the consumers. He does approve the use of agreements to obtain the maximum prices for growers when markets are not "fully competitive" (p. 260), or where farmers suffer the effects of lack of information. Thus, marketing agreements may provide some of the effectiveness of large-scale business, but at the same time there is a temptation to raise prices "above long-run competitive levels [which] would be harmful to consumers, and in the long run, to producers also" (p. 261).

This hasty summary of the author's review of minimum price control history omits mention of some excellent technical chapters. One (chapter 6) applies some of the author's earlier work to the effect of C.C.C. stabilization activities on geographical and grade price relationships. Chapters 8, 9, and 10 develop methods for stabilizing prices of corn, wheat and cotton, respectively, against fluctuations in production, in which the program arrived at for each product is affected by such factors as elasticity of demand for the commodity and the rôle of imports and exports.

In the closing chapters the author looks ahead to the post-war problem. The factors making for holding up agricultural production appear to be far stronger than those for holding up demand, both foreign and domestic, to wartime levels. Passing quickly over the immediate post-war problem, the author presents a cogent critique of parity, which ends with the telling point that this guide to policy is a guide to desirable farm income levels, but, unfortunately, it not only is inadequate for that purpose, but it also impedes the primary task of prices, that of governing farm production.

After having distinguished the rôle of price as guide to the production of particular commodities and as the determinant of the level of farm income, the author's suggestions deal almost exclusively with the former. His chief proposal deals with the stabilization of supply by means of "forward-pricing," supplemented by a storage program for non-perishables to equalize the influence of yield variations. Forward prices would be set by examining the elasticity of demand and elasticity of supply for various farm products.

"When prices for each product are finally worked out, they could be published along with the physical production goals as the prices estimated to be necessary to induce the production of the quantities of the different products specified in the goals. These prices would represent economic bench marks that would constitute at least a definite basis for arguments about the levels at which the forward price floors should be set" (p. 341).

Concerning this program, the reviewer will make three comments:

1. The techniques suggested for fixing forward prices and for determining storage operations rest heavily on analyses of the demand elasticity and the supply elasticity that have existed during an era of unstabilized prices. In addition to the well-known weaknesses of such analyses, the author uses statistical analyses of data from an era of unstabilized prices as a basis for evaluating the benefits of his program and for reaching conclusions as to the merits of alternative techniques for use under conditions of stabilized prices. When prices are not stabilized much of the elasticity of demand for particular farm products arises fom the substitution of one product for another such as feed wheat for corn and vice versa, as the price of one falls compared to the other. Similarly, much of the shift in acreage devoted to particular crops arises from past price experience, tempered by varying degrees of uncertainty of future prices for various products. What happens to the elasticity of demand when all prices are stabilized? What differing elasticities of supply will be experienced if and when farmers look forward to minimum price certainty? An obvious answer to this citicism is that elasticities based on past behavior can not be followed blindly, but must be tempered. But tempered on what basis? Judgment presumably.

At best forward prices would have to be based on elasticity of supply *estimates*, elasticity of demand *estimates,* and intensity of demand *estimates.* That leads to a dilemma. If a sizable tolerance is allowed for such errors and support levels are placed well below forward price levels, then actual market prices may fail by a large margin to equal the forward prices and farmers will lose confidence in the plan. If, on the other hand, the tolerance is small (other supporters of forward pricing have suggested only 5 or 10 per cent), then an error in forward pricing may have the effect of encouraging an oversupply and thereby of imposing an impossible carryover problem.

2. This leads to the second criticism, namely, that the author proposes that, with the exception of perishables, the government make good on its forward price commitments by loan rates or other devices which place a floor under market prices. Clearly consumption would remove more surpluses if market prices were left free and farmers given supplementary payments. This is rejected by the author on administrative grounds (and farmers oppose such a plan also). That leads the author to a plan of rigid price floors, the consequences of which can be disastrous if significant errors are made in forward pricing.

3. There is a fundamental conflict between the "forward-pricing" technique and the economic-political problem faced. This forward-pricing technique is an adaptation of the support price program used during the war, whereby guaranteed prices were set at levels needed to call forth the

desired production. Total agricultural production was stimulated thereby, and within agriculture some uses of land and feed were *encouraged more than others*. So far as the reviewer knows, no farm price fell during the war, and few, if any, even of products not desired by the War Food Administration, failed to enjoy increases in prices equal to or greater than increases in costs. It is easy to stimulate total production by higher prices or to get relatively more of one product by raising its price relatively more. It is another thing to lower support levels for some or all products absolutely. Resistance both political and economic to absolute declines in production are far different from impediments to absolute increase in production. This seems to be acknowledged by the author when he says that farm incomes "adequate to keep production forthcoming . . . would be lower than income for comparable work in other lines" (p. 342). One could go further and say, "incomes lower than agriculture will accept as the objective of national policy."

Are forward prices to be set at levels which would call for the desired production if total agricultural capacity were adjusted to demand so as to yield the desired level of farm income? Such an assumption is counter to the author's prognostications, for he expects that agricultural capacity after the war will be considerably above this level. If forward prices were to be set on such a false assumption, the prices would deter to a marked extent the contraction of capacity and burden the market with surpluses. Or are the forward prices to be set at levels which will bring forth the desired production when agricultural capacity is in fact above the level compared to demand which would provide the desired farm income? Clearly, with agriculture's well-known resistance to a decline in capacity in mind, prices set on this basis would be well below those set on the former basis. In fact, these forward prices would have to assume the burden of driving out excess capacity and they would provide a lower level of farm income than farmers consider proper.

This indicates clearly that, after having sought to cut loose his forward-pricing program from responsibility for total capacity and the level of farm incomes, the author's plan must lead him back into this dilemna. Not only does forward pricing in principle get into trouble by washing its hands of this larger problem; it will not be acceptable to farm groups. Clearly they, and I suspect most economists, hold that the income or demand compared to total capacity problem of agriculture is the basic problem. Only in a supplementary sense is the guiding of shifts within agriculture a problem at all, even when one grants the blind character of acreage shifts, for example.

The author recognizes that his program does not care for this longer-term problem of agriculture. However, except for some admonitions about the necessary rural-urban population shifts, he rejects such suggestions as acreage control as having no lasting effects on output, supplementary income payments as holding up capacity when it should be reduced, storage as only a temporary palliative, and so on.

Aside from failing to note the conflict between his forward-pricing plan and the existence of excess capacity, this unsatisfactory ending should not be held against the author. It merely represents the dilemna we face, that the income level demanded by farm groups, in light of the high capacity of post-

war agriculture, and of the resistance to the reduction of that capacity, does not jibe with a free agriculture, a free set of market prices, and a freer and reciprocal international trade.

R. B. Heflebower

Washington, D.C.

Industrial Organization; Price and Production Policies; Business Methods

World Rubber and Its Regulation. By K. E. Knorr. (Stanford University, Calif.: Stanford Univ. Press. 1945. Pp. 246. $3.00.)

This study is the latest of the Food Research Institute series on international commodity agreements, the others being on marine resources, coffee, petroleum, tea, and tin. Though, as its title indicates, it is focused on problems of international regulation, the author has included a comprehensive analysis of some of the major problems of United States policy respecting rubber. Indeed, to omit such an analysis would be to overlook one of the principal actors in the play since this country normally consumes more rubber than all the rest of the world combined.

The growing of rubber *(Hevea Brasiliensis)* was introduced into Southeastern Asia from Brazil by the British in the 1880's when they established a number of intensively cultivated plantations. By 1910 over one and a quarter million acres were in production and by 1922 plantations accounted for over 90 per cent of the world's rubber supply of over 400,000 tons. At the outbreak of World War II the production of wild rubber had dwindled to insignificant proportions and practically all of the world's natural rubber —around 1,000,000 tons annually—was supplied by plantations.

In the twenty-five year period preceding World War I the newly-established rubber plantations, though growing at a prodigious rate, were barely able to keep pace with the rapidly-growing demand for rubber. The tremendous growth of the automobile industry furnished an almost insatiable market for rubber and investors in plantations seemed to have discovered a practically riskless investment yielding spectacularly large profits. The First World War only intensified the situation; production of automobiles in the United States trebled from 1914 to 1917 and rubber prices were buoyant. But 1918 brought a reckoning. Stocks of rubber had piled up, demand fell off, and the ugly picture of overcapacity came into focus for the first time. It was now clear that the industry had passed through its period of adolescence. The conditions of supply that made it possible to expand production to meet a rapidly-growing demand only with considerable lag were now even more sluggish in making necessary adaptations to more stable demand conditions. Overcapacity was henceforth to be the number one problem of the industry.

As is the case with many agricultural products, adjustment of the supply to meet changes in demand—particularly downward changes—is not auto-

matically invoked with the smoothness and promptness so confidently set forth in the textbooks of classical economics.

Dr. Knorr analyzes clearly the economic characteristics of rubber production that make for such tardiness of adjustment and consequent overproduction, particularly on the "estates." Overhead costs are high and rigid. The so-called "agency system," whereby merchant houses are employed as agents, results in the imposition of high management fees, and amortization charges bring the fixed costs to over 45 per cent of total costs. Latex left untapped is latex lost. Overhead charges accumulate whether the latex is recovered or not, so that any gain at all over and above the covering of out-of-pocket expenses induces continued production. The operators rely very heavily on imported coolie workers—from India and China principally—and hesitate to curtail their operations lest they find their labor supply dissipated.

Rigid supply conditions obtain almost equally on the "native" holdings in those producing countries that are under British control. In those areas the operators derive their living almost solely from the sale of crude rubber and have to cover certain fixed charges. Only the native growers in the Netherlands Indies react promptly to changing prices, since they have practically no fixed costs and since the growing of rubber is not their chief source of livelihood.

About half of the plantation acreage in Malaysian countries in 1940 comprised "estates" (100 acres or more). "Native" production (on holdings smaller than 100 acres) is most important in the Netherlands Indies, Borneo, and Thailand, where upwards of 70 per cent of the acreage is controlled by small holders (compared with only 40 per cent in British Malaya). Native holdings are planted more densely than are the estates with the result that their yields per acre are larger than the yields of the estates. Although the product from these holdings compares poorly with the better grades of rubber produced on the estates, its cost is lower and does not tend to rise as production is curtailed. The costs, if they can be calculated at all, depend primarily on the value the holder places on his own labor.

It is not surprising that, as soon as the overproduction phase was reached, there should have been attempts to restrict output and maintain price. Several attempts at voluntary restriction were tried but all of them failed because there were always some producers—both estate and native—who chose to remain outside the agreement and take advantage of any market vacuum created by the restriction. Effective restriction, it was soon clear, would have to be comprehensive and compulsory.

On November 1, 1922 the famous Stevenson Plan became effective. Under it a prohibitive scale of export duties was imposed on exports from British controlled areas in excess of prescribed percentages of standard production.

Before long the pendulum swung in the opposite direction. "With world stocks critically low and restriction increasing, consumption suddenly expanded vigorously in 1925. A spectacular increase in automobile production was the chief cause. World stocks dwindled rapidly. The market turned panicky and rubber prices shot up sharply. In July 1925 they averaged no

less than 103.1 cents a pound. . . . The straitjacket inflexibility of the Stevenson restriction formula was the principal reason for this chaotic phase of the rubber market. . . . Instead of providing swift adjustment, the control mechanism blocked it."

Protests from the United States finally resulted in a slight modification of the plan in 1926 when the rate of permissible exports was increased. Prices, however, were raised simultaneously. By 1928 exports from the non-restricting areas began to exceed total shipments from the British producing countries and on November 1 of that year the British government abandoned the plan.

The Dutch had been invited to join the British in the Stevenson Plan but had refused. The net result of the scheme was to bring about an increase in plantings, the effects of which were to be felt with full force in the early 1930's when rubber prices declined to less than 3 cents a pound. After 1933 prices recovered somewhat, but shipments continued to exceed absorption and stocks continued to grow. Agitation was renewed for effective international regulation.

This time the Dutch, as well as the other important producing areas, agreed to act together and on June 1, 1934, the International Rubber Regulation Agreement became effective. It took the form of a treaty among the countries accounting for 98.7 per cent of the world's total rubber exports (British Malaya, Ceylon, British India, Burma, North Borneo, Sarawak, the Netherlands Indies, Thailand, and French Indo-China). The agreement was to last through 1938. It was, in fact, renewed in 1937 and remained in effect until April 30, 1944.

The author analyzes the operation of the I.R.R.A. in great detail and centers his criticism primarily on the fact that it was geared to short-run, rather than long-run, considerations. It sought to prevent the flow of excess supplies by export restriction and to adapt exports to the manipulation of a price level profitable to the majority of the estate producers. It did nothing to cure the basic ills of the industry; it did not endeavor to improve productive efficiency and to lower costs by the amalgamation of small estates. It was franky admitted, in fact, by the Chairman of the British North Borneo Company, that "one of the primary objects of the Rubber Control Scheme was to protect European capital in plantation companies in Malaya, Borneo, and the Netherlands Indies from competition arising from the production of rubber by the native at a fraction of the cost involved on European-owned estates."

Under the scheme basic export quotas were fixed roughly on the basis of average exports from 1929 to 1932 and, in any control year, the net exports of a signatory country were not to exceed the permissible exportable amount by more than 5 per cent. New planting was prohibited and re-planting was strictly limited.

The I.R.R.A. did succeed in avoiding one of the weaknesses of the Stevenson Plan. It did not place reliance on a mechanical formula. Instead it set up a controlling body to exercise its own judgment in the setting of permissible export percentages. Nevertheless it perpetuated rigidities that made eventual adjustment more, rather than less, difficult. It served to protect the estate

industry against native competition by the restriction of individual producing units on the basis of an historical *status quo*. It therefore left the existing productive capacity and financial structure untouched and transferred the cost of operating the scheme to the consumers of rubber. "By protecting investments in obsolete producing units, by keeping them in production on the same basis as efficient producers, and by necessitating a sharp average rate of output restriction, the cost level was artificially raised."

Under free competition, the author believes, the large and vigorously-growing capacity of native producers in the Netherlands Indies would have made for an appreciably lower cost level in that country as compared with British Malaya. Any really enlightened solution of the problem, he maintains, should provide for the "amputation" of the surplus output capacity represented by the technically obsolete units. As it was, the I.R.R.A. provided an incentive for the development of synthetic rubbers which undoubtedly would have eventually come into their own even if World War II had not occurred.

The I.R.R.A., then, is to be criticized more for not going far enough than for trying to solve the problem by agreement. Had the producing countries had the courage and vision to have hastened and softened the process of adjustment of efficient capacity to likely world demand, the international control could have benefited both consumers and the efficient majority of producers. The author concludes, with regard to international control machinery generally, that "with a persistency that borders on invariability, business men as well as governments tend to orient policies toward the short-run approach." The I.R.R.A., in fact, did more to aggravate the long-run rubber problem than to solve it.

Almost overnight the United States created a synthetic rubber industry which, by 1945, was expanded to such an extent that the rationing of tires made of artificial materials could be gradually relaxed. We had emerged from the war with a capacity—practically all government owned—to produce more than 1,000,000 long tons of general purpose synthetic rubber (GR-S) and over 100,000 tons of special purpose rubbers (butyl, neoprene, etc.)

Technological development in the production and use of synthetic rubbers has been very rapid, and it is not known today how they will eventually compare with the natural product on a quality basis. The specialty synthetics—such as butyl which is used for inner tubes and neoprene which has high oil-resistant properties—seem to be quite capable of holding their own with natural rubber, even at moderate premium prices. The picture with regard to the general purpose GR-S (which is used for tires) is much less clear.

Without a substantial price differential in favor of GR-S, it is clear that at the present time manufacturers prefer to use natural rubber. So long as natural rubber continues in short supply—probably well into 1947, or longer—there is no doubt but that GR-S will continue to be produced and used in large quantities. But when natural rubber again becomes plentiful it is extremely doubtful whether GR-S will be able to compete with natural without government support of some kind.

It is not unlikely, if the synthetic plants are turned over by the government to private owners, that—allowing for reasonable selling expenses and amortiza-

tion charges—GR-S will sell for as low as 14 to 16 cents a pound. No one can tell, of course, what new developments will occur in the production of synthetic rubber. If the last three years are any guide to the future, it is not at all impossible that the synthetic might be superior to the natural in quality and lower in price.

For a time, of course, natural rubber will continue in short supply. When the surplus stage is reached there is no telling what its price will be. It will depend upon how far the estates go, or are forced to go, in "rationalizing" their production. If inefficient operations are eliminated it is possible that natural might sell for as low as 8 or 10 cents a pound.

With both the American synthetic industry and the Asiatic natural rubber industry characterized by high costs for a substantial proportion of their output, the situation is ripe for "cut-throat" competition. If important new uses for rubber are found and if both the natural and synthetic industries were to stabilize at roughly one-half of their present capacities, both could undoubtedly survive on a reasonably prosperous basis.

So far as the United States is concerned the rubber problem is complicated by the requirements of national security. The author believes that a stockpile of natural rubber comprising one or more years' normal requirements of rubber should be maintained and that around 200,000 tons annual output capacity for general-purpose synthetics should be retained for this purpose. He doubts the feasibility of keeping plants in "standby" condition and does not look upon a tariff on natural rubber as being desirable. It might be feasible to adopt some form of direct subsidy. But, if this is done, he believes there should be a well-defined procedure for periodically examining and revising its amount. Whatever protection is granted should be selective and confined to no more than one-fourth of the capacity built during World War II.

Dr. Knorr's book should be "must" reading for those who are in any way responsible for formulating this country's rubber policy. He has provided a back drop of the world rubber problem of which this country's problem is but a part, though an important one. He has sketched the general direction in which we must go if we are to live up to the Good Neighbor policy without sacrificing our own vital security needs. At a few points the book is slightly repetitive and at times the style is a bit heavy. But these are only minor defects in a work that is otherwise thoroughly scholarly.

Howard S. Piquet

Washington, D.C.

Economic Geography; Regional Planning; Urban Land; Housing

TVA, Democracy on the March. By David E. Lilienthal. (New York: Harper. 1944. Pp. xiv, 248. $2.50.)

This book is the story of a great change in the Tennessee River drainage basin. It is a story of a river which has been brought under control, and put to work in the service of mankind. It is a story of land, whose fertility has

been renewed, and of forests that have been refreshed with young growth. Even more it is a story of the people and their building of a new valley. But it is not essentially a history of the region (and the part that the Tennessee Valley Authority has played in its development). Rather it is a book about tomorrow, its fundamental purpose being to show how the experience of the TVA can be drawn upon to safeguard the future course of resource development in the valley and elsewhere in the country (and the world, for that matter).

Though the author, the well-known chairman of the board of directors of TVA, naturally favors the creation of other regional authorities employing TVA principles, he has a deeper purpose in writing this book than such advocacy. He is especially concerned that science and technology be combined with nature in such manner as to improve the standard of living of people, in this country and abroad, in other words, with resource development. He calls this "The Grand Job of This Century."

The job of resource development must be undertaken, of course, with a moral purpose; it must be conceived and carried out for the benefit of the people, rather than special interests. But high purpose alone will not ensure that resource development be a blessing rather than a curse. The author, drawing on the experience of the TVA, insists that two other principles must be followed.

The first principle is that resource development must be governed by the "unity of nature"—the unity that binds together streams, land, forests, minerals, farming, industry, and mankind. A river must be envisaged in its entirety. In its development regard must be had to the need for electric energy, channels for navigation, a water supply for domestic use and irrigation, facilities for recreation, including swimming, boating, fishing; and protection must be provided against floods, soil erosion, and stream pollution. In the case of the Tennessee River and its tributaries Congress directed that all of these functions should be entrusted to one agency; the resources of the valley were not to be broken up into separate parts that would fit into the traditional governmenal scheme of administration.

In this respect the action of Congress represented a sharp break with the past. There were, to be sure, well-established precedents for government activity in flood control, navigation, power, agriculture, forestry, and research, but hitherto no single agency had been entrusted with the unitary task of developing a river so as to release the total benefit from its waters to the people. This was virtually revolution in government administration. And as an important corollary this step placed upon TVA the full responsibility for success or failure. Being largely freed from jurisdictional disputes, and being solely responsible for the selection and promotion of its personnel under a legislative mandate to permit no political test or qualification in the selection or promotion of employees, the TVA could not escape accountability, should it fail in its designated task.

The second principle is that the people must participate actively in the job of resource development; this is the only way the job can be done effectively.

A method of resource development that draws in the average man and woman, and makes them a part of the job, in the day-to-day work in the field, factory, and office, will tap riches of human talent that can never be enlisted by any highly centralized, dictatorial, and impersonal system of development. It is just such widespread and intimate participation of the people in the development of their valley that has characterized the operations of the TVA. The job of region building has been carried out at the "grass roots" in almost every phase of the TVA's life—among farmers, workmen, business men.

The grass roots policy has been extended also to the state and local governments. The author asserts that it is true without exception that, whenever a state or local agency can perform part of the task of resource development for which TVA has the primary responsibility, the endeavor has been made to have them undertake it. It can not be disputed, he says, that the state and local governments are stronger now than they were when the TVA was created. Among his illustrations is the public park system. When the TVA was created the state of Tennessee had no department of conservation, no state park system and no county park areas; but now it has a conservation department and one of the best state park systems in the Southeast.

Encouraging in these days of federal centralization are Mr. Lilienthal's views with regard to the desirability of decentralizing the administration of the functions of the central government. He recognizes fully the need for a strong central government, but he objects to the remote and absentee control associated with centralization in administration. It does not follow merely because power is granted to Washington that it must be exercised there. Our task, he says, must be to invent devices of management that will permit many of the powers of the central government to be administered in the field, and not from Washington, where "there is and always has been so much bureaucratic spirit, such organizational intrigue, so much pathologic personal ambition, so many burning jealousies and vendettas." Democracy can not thrive in such an atmosphere.

If this state of affairs continues, one of two things will ultimately happen. Either the distrustful citizens will deny the national government the powers it should have in the national interest, or an arrogant central government will impose its will by force. In either case the substance of democracy will have been lost. Those who believe in democracy must, therefore, prevent the administration of affairs from becoming so concentrated in Washington as to deaden the average citizen's sense of participation in government, for in citizen participation lies the vitality of democracy. If the TVA experiment as administered thus helps to solve some of the problems raised by the flight of authority to the center and the isolation of the citizen from his government, history may quite possibly record that as TVA's greatest contribution to national well-being and the strengthening of democracy.

In line with the foregoing views Mr. Lilienthal sets definite limits to the expansion of the TVA itself. He believes that the full potentialities of a unified approach to resource development will not be realized if the regional

agency covers too large a region. In his judgment the present TVA region should not be enlarged substantially. It would be logical to bring the Cumberland River within the TVA, and there should perhaps be some extension of electricity beyond the area now served, but any substantial enlargement of the territorial scope of the TVA would impair its effectiveness and tend to produce the very evils of remoteness which the Authority is endeavoring to remedy.

This is a refreshing book by virtue of the optimism, idealism, and yet common sense of the author. It is written on a very high plane, and the reviewer is grateful to the author for allaying some common doubts and fears, and for offering the hope, at least, of a better world in which the people under democratic methods will strive to bring the individual interest into harmony with the national interest.

ELIOT JONES

Stanford University

Labor and Industrial Relations

Yearbook of American Labor. Vol. I. *War Labor Policies*. Edited by COLSTON E. WARNE, chairman. (New York: Philosophical Library. 1945. Pp. xvii, 655. $7.50.)

This symposium on war labor policies and events is published for the Institute of Labor Studies. The function of this institute, as explained in a short prefatory note, is to promote fruitful research by bringing to bear on the labor field "the best talent that is available, with all that implies of objective standards and sound scholarship."

A great number of qualified spokesmen have, indeed, been brought together to write this comprehensive record of contemporary labor developments. More than 35 teachers of economics and sociology, government and union officers, men of the labor press and other experts have contributed to the book. Almost every important recent development in labor economics and policies, labor law and social legislation, government price and wage control and rationing, industrial relations, the situation of minority and other special labor groups, national and international unionism, and related fields is discussed in the six parts of the work on Status of Labor, Labor and the Government, Case Studies of Organized Labor, Special Labor Groups, Wartime Union Policies, and International Relations of American Labor. The Introduction presents an analysis of the book and shows the correlations between pre-war and war developments. A Balance Sheet of Labor, 1944, winds up the discussion.

It is of course impossible to do justice to all of the thirty-two articles of the book in this short review. I believe that the strength of most of them lies in the fact that they not only discuss war developments proper, but also include short analyses of the basic problems involved and present recent developments with due regard to their pre-war origins. This technique offers the reader, especially the lay reader, an opportunity to judge recent events as steps in

gradual evolution. It will thus help him to understand developments which otherwise might seem enigmatical.

Some chapters of the book, as, for example, those on the union maintenance policy of the National War Labor Board, on wage stabilization, and on new problems in social security, deal with complex and highly controversial subjects in relatively few pages; but, owing to the concentrated and systematic manner of presentation, they contain a remarkable amount of information. The value of several contributions is enhanced by the fact that their authors are the persons who were entrusted by the government with the task of solving those problems which they discuss in their articles. By bringing together all the monographs in a single volume, a useful reference book has been created.

Since the book covers a considerable number of highly controversial subjects, the editors have been confronted with the problem of partiality. In explaining their attitude with respect to this problem, they state: "We have been most anxious to reduce the problem of bias to a minimum. We appreciate fully that areas of dispute exist and have sought to balance our presentation of the more controversial issues." The editors were not completely successful in this respect. It is quite obvious that some contributors have succumbed to the danger of giving their chapters, by omission or commission, a color best suited to serve their academic or their group's economic interest, rather than to present a perfectly objective picture before drawing conclusions.

The editors have invited a critical appraisal from all readers "of this first somewhat experimental volume." Here is this reader's suggestion:

According to the Preface, the editors wished to publish a book that will prove an aid to unions in analyzing, interpreting, and appraising existing labor policies; that will be useful for those in government and in business life; that will serve the student of labor as a ready reference volume; and that will prove a valuable adjunct to college courses in industrial relations. The value of the book for all these objectives will be increased if in future editions any partiality is suppressed, and if, for this purpose, contributors are selected who represent a greater variety of ideologies than the present participants do. This statement does not in the least reflect upon the present contributors' philosophies or affiliations. But it is believed impossible to judge contemporary labor developments "with all that implies of objective standards and sound scholarship" unless qualified spokesmen of *all* groups concerned with labor policies and industrial relations are given the opportunity of presenting their reports and interpretations. In order to appraise existing labor policy, enlightened union and government officers, business men, students of labor problems, and certainly teachers of labor economics and industrial relations, need as comprehensive a survey as possible of *different* views. In the editors' Preface the wish is expressed to make future editions of the Yearbook "even more valuable to its users." Consideration of the foregoing suggestion could help to make that wish come true.

KURT BRAUN

The Brookings Institution

Social Insurance; Relief; Pensions; Public Welfare

In the Margins of Chaos; Recollections of Relief Work in and Between Three Wars. By FRANCESCA M. WILSON. (New York: Macmillan. 1945. Pp. xii, 313, $3.00.)

Francesca Wilson, a British school teacher, has spent a good deal of the last thirty years in foreign service. The plight of refugee Belgians whom she had first met seeking refuge in England, took her to Holland and France in 1915 and 1916. As a member of a small British Friends Unit she followed her brother, also a relief worker, to Corsica where the Serbian Relief Fund tried to make life a little more bearable for exiled Serbs. The same kind of work soon took her to North Africa and eventually to Serbia, together with the early groups of repatriates. Again a devastated country, widespread misery, lack of all desirable services, challenged her ingenuity and with utmost patience various emergency services were gradually developed for children and adults, for the homeless and for the sick, for disabled veterans and for all kinds of people who were simply disorganized, half-hearted and crushed by continuous suffering.

While in Serbia Miss Wilson heard of starving Vienna, and decided to look into Friends work in Vienna on her way to England. A chance visit developed into three years of service in Austria, mostly offering aid to groups of students and professors and other members of a middle class caught in the grinding poverty of superinflation. Hers was humble and unspectacular work, expression of a common brotherhood and of an eagerness to share experiences and the rather scanty goods at the disposal of international relief workers. In September, 1922, she transferred from Vienna to famine relief in Soviet Russia, assigned to an outpost in the Buzuluk region, where she and a young English girl were in charge of food distribution for an area including sixty villages or hamlets. The relief workers lived in a log cabin with Russian peasants, visiting local committees, families and most depressing children's orphanages full of listless, sickly, ragged children.

In 1937 the Spanish War, especially the misery of the children, haunted Francesca Wilson and again she took leave from her school, joining a very small group of courageous relief workers. She was just in time to share the nightmare of crowds of wild-eyed refugees fleeing from Malaga before it fell to Franco's Italian Army. Again services were improvised, hospitals for children, occupational centers, open air schools for dealing with the hoards of refugee children, even farm colonies where food was raised. Soon the mass of Spanish refugees pushed into France, half a million or more after the surrender. Francesca Wilson followed them into the bleak internment camps where she tried to bring a little cheer, a little food, some textiles and sewing utensils, at a time when the world was paying scant attention to individual misery even if it appeared *en masse*.

The German invasion of Poland and the simultaneous entry of Russian troops from the east produced another stream of forlorn bands of refugees, this time Poles moving into Rumania and Hungary, into chaos. An urgent call of the Polish Relief Fund coöperating with the British Friends took Francesca

Wilson to Hungary with a relief unit of six, distributing clothing and other relief, including British government contributions. After the fall of Poland, Hungary had become the only route of escape for the Czechs and for the earlier victims of nazi persecution who had found temporary refuge in Czechoslovakia. However, increasing German pressure and the imminent entry of Italy into the war quickly terminated that phase of her work.

Francesca Wilson's simple and vivid account of her many colorful activities and experiences is completely unassuming and unembellished; plain statements of an eye-witness with a warm heart and pretty sharp eyes who above all likes people and wants to share her strength but who has few illusions as to the adequacy of the services of which she has been such a vital part. "Thinking over relief work in the middle of a new chaos, with the old situations back again, magnified and multiplied and a thousand times more hideous, is not an encouraging task. What does it appear in retrospect but lost endeavor, an ever-repeated sweeping up the sands with vaster deserts in front?" Most of the services which she has so ably helped to organize have left little behind which may live after the emergency is over except where they have helped to train nationals or supported local social services in their periods of greatest strain rather than trying to supplant them. Miss Wilson thinks that the most lasting and deepest value of foreign relief as she has known it relates to its capacity for expressing international friendship, sometimes furnishing more effective ambassadors than those appointed by governments for official functions. If they are not hedged around with pomp and officialdom "careful whom they know and what they see and say, but live and work and suffer and hope with ordinary people, relief workers as ambassadors may be immeasurably important."

Miss Wilson has no special brief for the voluntary relief organizations under present conditions. We have at last become planning-minded and conditions after this war have no parallel since the Thirty Years War in their overwhelming scale of needs. Voluntary services should offer assistance and supplementation to intergovernmental services, but the existence of an official super-state body in charge of relief, the United Nations Relief and Rehabilitation Administration, is recognized as "an advance of incalculable importance."

Hertha Kraus

Bryn Mawr College

American Medical Practice, in the Perspectives of a Century. By Bernhard J. Stern. (New York: Commonwealth Fund. 1945. Pp. xvi, 156. $1.50.)

This publication is the first of a series of monographs to be written at the request of a committee on medicine and the changing order of the New York Academy of Medicine. The monographs are designed to provide the framework for an understanding of the current medical situation and its needs. It is stated in the Foreword that the monographs are expected to draw from history something of the framework of an understanding of medical problems of today. The committee, however, desires not merely a chronology of events, but rather a treatment of the subject matter which will bring to light the

achievements and the inadequacies in present-day medical practice—the uneven development of its different sectors, the prevailing incongruities and irrationalities, as well as the lag in the adjustment of medicine to the social needs of today.

Dr. Stern has written a monograph which follows closely the pattern set by the committee. He has drawn upon a large number of studies previously published and has presented in readable form many of the significant details from much of the important source material. The monograph will be enlightening and useful to the medical profession and to all other professional and lay groups who are interested in the provision of a high quality of curative and preventive service to all people, whether they belong to low or high income groups.

Although the monograph is divided into seven chapters, actually the discussion falls into three groups. Chapter I gives a bird's eye view of the economic history of the United States. The conclusion drawn from the data presented in this chapter may best be stated in the words of the author: "In the face of the vast increase in national income and of consumers' goods, a situation has developed in which a large segment of the people of the United States have incomes that do not permit them to share fully in these social gains."

In Chapters II to VI the development, changes, and problems of medical practice since the Civil War are discussed. In Chapter II the growth of the science of medicine is reviewed. In Chapter III the author explains the reasons for the development of the specialist in medical practice and points out some of the problems from the point of view of both the physician and the patient. In Chapter IV the author presents data as to the supply and the distribution of physicians with particular emphasis on the shortage of physicians in the low income sections of the country, the rural areas and the small communities which are not able to assure adequate incomes to physicians and to finance hospital services.

In Chapter V there is set forth available data on the patient load of the physician. The author states that patient load furnishes an index of the adequacy of the supply of physicians in terms of the use of these services. Dr. Stern correctly emphasizes, however, that it does not provide an index of need for medical services. Whether or not illnesses actually receive care is to a large extent dependent upon the ability to pay for medical care and the choice between spending money for a doctor or for something else the family may need or want. Chapter VI is a digest of the available information as to incomes of physicians. The conclusion drawn is that under the present arrangements of medical organization many physicians are insecure financially. The reader's attention is, however, drawn to the fact that, although an adequate income for the physician is important as a factor in his ability to keep up with advances in medical science and to utilize new medical technology, an improvement in the financial status of the physician will not alone solve the problems of the quality of medical care.

Chapter VII, the final chapter, deals with the problems of the consumer of medical services, and his difficulties in financing present standards of medical care in communities where such care is obtainable. The details in this chapter

will be highly enlightening to students of the problem and possibly shocking to those who may have been lulled into complacency by the general impression that we are a rich country with a highly developed medical science. A vast array of statistical data supports the author's conclusions that the medical needs of a considerable proportion of American families are not fully met. The amounts spent for medical care decline consistently as incomes drop. Yet mortality and morbidity statistics indicate that the need for medical care among lower income groups is greater than among higher income groups. The author's conclusion is that the chief problem of medical practice today is how a high quality of curative and preventive medical services can be made available to all people, whether they belong to low or high income groups, whether they be rural or urban residents, Negro or white.

It is disappointing that the author, having so carefully analyzed a vast amount of data regarding the economic inability of large numbers of our population to secure adequate medical care, did not go one step further and suggest a solution to this problem. It would appear to the writer of this review that the impressive array of data presented by Dr. Stern would inevitably lead to the conclusion that the use of the insurance principle, the distribution of the cost over large groups, must be adopted if adequate medical care is to be made available to rich and poor. Dr. Stern's own conclusions from his data might, however, differ from mine; and it is almost certain that the monograph will leave many with the question as to what would be his recommendation for making available to all the best known practice in preventive and curative medicine.

EMILY H. HUNTINGTON

University of California
Berkeley, California

Population; Migration; Vital Statistics

Demographic Studies of Selected Areas of Rapid Growth. Proceedings of the Round Table on Population Problems; Twenty-second Annual Conference of the Milbank Memorial Fund, April, 1944. (New York: Milbank Memorial Fund. 1944. Pp. iv, 158. $1.00.)

These studies, here collected under one cover as an "afterthought," are in the nature of preliminary or interim statements of the results of demographic analyses carried on by members of the staff of the Office of Population Research, Princeton University. The areas selected are Japan, India, Southeastern Europe, the Near East, and Egypt. No study of China is included although it comes in for incidental comment, as does Puerto Rico at the very end of the volume. The studies vary in method and content, some confined to straight statistical analysis, others—recognizing that the population problem involves both demographic and non-demographic factors—going into economic, technological, political, and cultural influences and venturing generalizations as to policies. Notable for this wider range of analysis are "The dynamics

of population in Japan," by Irene B. Taeuber and Edwin G. Beal, "Demographic fact and policy in India," by Kingsley Davis, and the final chapter, "Problems of policy in relation to areas of heavy population pressure," by Frank W. Notestein.

This reviewer early in 1945, ventured to call to the attention of economists the great import of the population problem in these areas to the future of international relations. The present studies, together with the more popular *Population Roads to Peace and War*, by Burch and Pendell,[1] are significant indication that others are aware of the dangers inherent in the rapid increase, actual and potential, in already overpopulated but industrially undeveloped countries like India and China. There is, of course, nothing wholly novel in this recognition. It was expressed many years ago, somewhat sensationally, by Lothrop Stoddard, and popularly in Warren S. Thompson's *Danger Spots* and E. A. Ross's *Standing Room Only*. Ross in particular called attention to the effect which the importation of Western industrialism and culture into the Orient would have in reducing mortality long before an appreciable reduction of fertility could be expected, and the consequent increased pressure of population on resources—an idea central to the present studies.

These studies are refreshing evidence that American demographers are emerging from the sheer technician stage to a larger range of interest and a broader grasp of substantive problems. It has been characteristic of population research in recent decades that immediate and relatively local problems got attention, while immensely more important ones—for the long run at least—have been neglected. Economists lost interest in population problems. First the biologists and then the sociologists took over. Together with a new and highly trained crop of vital statisticians, they now dominate the Population Association of America. Interests have centered on the development of more refined techniques of demographic analysis, and especially on studies of differential fertility. Evidence of this absorption—not to say obsession—is afforded by many of the publications of the Milbank Memorial Fund as well as by Lorimer's excellent book, *The Dynamics of Population*. But studies of the international aspects of the fundamentally economic population-resources relation have been conspicuous by their absence. The latest text—a good one within its limited range—Landis's *Population Problems, a Cultural Interpretation*, deals not at all with the economics of population and is hardly aware that population presents any international problems or issues.

In the West, after a century in which rapid population growth was correlated with industrialization and urbanization, decline in fertility has overtaken decline in mortality. Can today's undeveloped regions support the greatly increased numbers which will result from industrialization long enough for birth control to be established in their culture, or will the lag of birth control behind death control produce a catastrophic situation? That is the question which the contributors of these studies have in mind. In this regard, Notestein's observations in the final chapter are extremely cogent. Special mention should

[1] Washington, Population Reference Bureau, 1945.

also be made of the article on Egypt by Wendell Cleland of the American University at Cairo.

A. B. Wolfe

Ohio State University

Unclassified Items

The Philosophy of Edward Bellamy. By Arthur E. Morgan. (New York: King's Crown Press. 1946. Pp. vii, 96. $1.60.)

Some years ago Dr. Arthur E. Morgan, noted engineer, educator and public administrator, undertook the fascinating task of studying the life and works of the great utopian writer, Edward Bellamy. When he began this task, he took it for granted that Bellamy's interests had been only those of social reform and utopian adventuring.

An examination of Bellamy's unpublished writings, however, soon disclosed the fact that the author's work in the field of social reform had been only a "detour," and that Bellamy's first intellectual contributions had been largely in the field of philosophy. In fact, for some fifteen years prior to the publication of *Looking Backward* and its wide acclaim by the reading public, Bellamy had thought deeply and written constantly on philosophic problems. And he would doubtless have dedicated many more years to the formulation of his philosophic concepts had it not been for the great and unexpected success of his utopian writings. In 1893, after the publication of *Looking Backward,* he wrote to Dean Howells: "The responsibility upon us who have won the ear of the public to plead the cause of the voiceless masses, is beyond limit . . . the better a man does the better he has got to do. There is no discharge in that war."

Bellamy hoped that, when his social and political obligations had been fulfilled, he would be able to return to his first love, further to define his philosophic views and to present them to the public in orderly fashion. It was, in fact, his belief that the exposition of his philosophic views would constitute the greatest work of his life. This, however, was not to be. Bellamy for years suffered from ill health, and died at the early age of 49, when he was still devoting much of his time to the cause of socialism and social reform.

Dr. Morgan has painstakingly gathered together the more important of Bellamy's non-economic writings, under the title, *The Philosophy of Edward Bellamy,* and has published them in a short volume. Commenting on these writings, Bellamy's biographer declares that they disclose "one of those rare original minds which has the skill and power to get outside the framework of our thinking and to view man and his setting as would a fresh mind from another sphere."

Dr. Morgan first presents "The Religion of Solidarity" by Bellamy, written when the latter was only 24 years of age, as the best single expression now extant of the American utopian's general concept of life, of mankind's relation

to the whole, and of the nature of things. In this essay, Bellamy sees a duality in life: an individual, personal, private life, and a life "that is a spark of the universal life . . . greedy of infinity, asserting solidarity with all things and all existence." The essay shows that Bellamy had been considerably influenced by Thoreau and Emerson and by the Hindu philosophy which had had its effect on the Concord School.

Following "The Religion of Solidarity," Dr. Morgan presents from Bellamy's articles, scattered notes and fictional writings, the utopian's pioneering thinking on the fears that beset mankind, and sets forth Bellamy's suggestions for the elimination of many of these fears. The latter part of the book deals with Bellamy's approach to an economy of happiness, and to the religious teachings of his day.

Bellamy's philosophic writings throughout reveal a man interested not only in fundamental economic change, but also in the whole range of psychological, ethical, philosophical and religious problems with which mankind is faced and with ways and means of bringing unity and consistency in thought and action into his own life and into the lives of his fellows. They reveal a man of penetrating mind, of high ethical concepts, of imagination and intellectual courage. Students of Edward Bellamy and his school of utopian thought are deeply indebted to Dr. Morgan for his painstaking, scholarly and sympathetic study of this little known phase of Bellamy's life and for bringing to public attention Bellamy's thought-provoking contributions in these fields.

HARRY W. LAIDLER

League for Industrial Democracy

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Edwin Walter Kemmerer

1875-1945

Edwin Walter Kemmerer, past-president of the American Economic Association, died in Princeton, New Jersey, on December 16, 1945. He had been a member of the Association since 1903, had served from 1907 to 1910 as Managing Editor of the ***Economic Bulletin*** (predecessor journal of the *American Economic Review*) and was on the Board of Editors of the *Review* from 1911 to 1913. He was elected to the presidency of the Association for 1926.

Born in Scranton, Pennsylvania, on June 29, 1875, to Lorenzo D. and Martha H. Courtright Kemmerer, the future "Money Doctor" prepared for college at Keystone Academy, Factoryville, Pennsylvania, and then attended Wesleyan University where he received his A.B. degree, with honors and a Phi Beta Kappa key, in 1899. From Wesleyan he went on to Cornell University to pursue his studies for the doctorate. After two years in residence there, as a Fellow in Economics and Finance, he took his first teaching position as instructor in Economics and History at Purdue University. In 1903 he received his Ph.D. degree from Cornell, submitting a thesis entitled *Money and Credit Instruments in their Relation to General Prices.* This pioneering study in quantitative economics (presently brought out in book form) established the author as a rising authority in the field of money and led to his appointment, at 28, as Financial Adviser to the United States Philippine Commission. This was the beginning of a career in the application of economic doctrine to public affairs which, in geographical range as in other respects, has few if any parallels. He remained in the Far East till 1906 and, in his three years there, developed in detail the plan under which the monetary system of the Philippines was placed on the gold exchange standard, drafted the laws for the organization of the postal savings system and the Agricultural Bank of the Islands, and served as Chief of the Division of the Currency. *En route* to study the Agricultural Bank of Egypt, he visited the Straits Settlements and prepared a special report on their currency situation.

Returning to this country in 1906, he joined the faculty of Cornell University as assistant professor. Six years later, after attaining full rank at Cornell, he moved to Princeton University where he spent the remainder of his academic life. In 1928 he was made director of the newly established International Finance Section at Princeton and was the first incumbent of the specially endowed Walker professorship in international finance. He retired from active service in 1943.

Professor Kemmerer's long term at Princeton was marked by frequent calls to public service, in many countries, in the restoration of sick currency systems. His successful therapy led to the sobriquet "Money Doctor" by which he was internationally known. His work as financial adviser to foreign countries began in 1917 on his appointment, in that capacity, to the government of Mexico. It was continued in 1919 for the government of Guatemala. The

results attained in each successive project led to a cumulative enhancement of his prestige and of the demand for his services. Furthermore, there tended to be a broadening of the base of operations and an enlargement of the field of activity. Currency reforms can not be isolated from such problems as those relating to public budgets, systems of taxation, systems of banking, conditions in the markets for foreign exchange, the service of the public debt owned abroad. It therefore soon came to be Professor Kemmerer's practice, as his advisory services were requisitioned, to form a group or commission of experts, each member an outstanding specialist in his field. Such commissions were formed to serve Colombia in 1923 and 1930, Chile in 1925, Poland in 1926, Ecuador in 1926-1927, Bolivia in 1927, China in 1929, and Peru in 1931. In two cases Professor Kemmerer shared with another the leadership of such a commission. In 1924-1925 he was associated with Dr. Vissering, president of the Netherlands Bank, at the head of a commission formed at the request of the government of the Union of South Africa. Their task was to investigate and report upon the feasibility of a return to the gold standard by that government independently of the currency policy of Great Britain. Finally, in 1934, he was co-chairman of the so-called Hines-Kemmerer Commission established to make an economic survey of Turkey.

In 1922 Professor Kemmerer served as a United States Trade Commissioner in South America. In 1924-1925 he accompanied the Dawes Commission to Europe. As the Commission's Expert on Currency and Banking he drafted substantial parts of the plans then made for the reorganization of the German Reichsbank and for the stabilization of German currency.

This record of accomplishment in the field of public affairs brought Professor Kemmerer many honors. He was the recipient of seven honorary degrees. The degree of Doctor of Commercial Science of Oglethorpe University was conferred on him in 1933; that of Doctor of Science of Rutgers University, also in 1933. Three institutions gave him the honorary degree of Doctor of Laws: Wesleyan University in 1926; Occidental College in 1928; and Columbia University in 1935. In 1927 Professor Kemmerer received from the Central University of Ecuador and also from all the universities of Bolivia acting together an honorary degree of "Doctor," no field of knowledge being specified. Professor Kemmerer was the second person in the history of the Central University of Ecuador to be so designated.

As to non-academic honors and awards, Professor Kemmerer received in 1923 from the government of Colombia a special gold medal; from the government of Poland in 1926 the Commander's Star of the Order of Polonia Restituta; from the government of Ecuador in 1927 the Order of Merit of the First Class; and from the government of Belgium in 1937 the Order of the Crown.

Professor Kemmerer's excursions into public affairs did not preclude prolific literary activities and some of his books, such as the *A B C of the Federal Reserve System,* had an enormous vogue. He was an uncompromising protagonist of the gold standard and most of his later work, though broad in scope, was devoted to a defense of that system. His *Modern Currency*

Reforms, an analysis and description of certain gold exchange standard currencies, is of unique historical value and will, perhaps, outlive all the rest of his writings.

Professor Kemmerer's literary style was remarkable for its lucid simplicity and the same quality marked his oral exposition. Without the slightest display of ornamentation, except by charts, his lectures and preceptorial discussions were extraordinarily effective, and he left a deep impress on his students.

As a man he was singularly genial and unassuming. His strong convictions were always considerately expressed and he never suffered doctrinal differences to cloud his personal regard for his opponents. On many of his missions he was exuberantly lauded by those in high office but he himself never lost his simple charm. His disciples were legion and they will sorely miss him but, however highly his friends may rate him as a scholar, they will hold still more dearly the memory of the gentleman.

Stanley E. Howard
Frank D. Graham
David A. McCabe
Frank Albert Fetter

Princeton University

NOTES

The following persons have recently become members of the AMERICAN ECONOMIC ASSOCIATION:

Aman, J. A., 904 Caldwell St., Newberry, S.C.
Anshen, M., 4607 Connecticut Ave. N.W., Washington 8, D.C.
Aquino, R., 4520 MacArthur Blvd. N.W., Washington 7, D.C.
Aronson, R. L., Ohio State University, Dept. of Econ., Columbus 10, Ohio.
Ashby, L. D., University of Wisconsin, Dept. of Econ., Madison, Wis.
Beattie, J. R., Bank of Canada, Ottawa, Canada.
Berkowitz, M., 24 Day St., Clifton, N.J.
Beyer, G. H., National Housing Agency, Market Res. Sec., Housing Market Service, Washington 25, D.C.
Bianchi, R., Carleton College, Dept. of Econ., Northfield, Minn.
Birnkrant, Miss G. C., 370 Temple St., New Haven, Conn.
Bright, A. A., Jr., 119 Holden Green, Cambridge 38, Mass.
Brown, P. S., R.F.D. 2, Box 560, Alexandria, Va.
Cave, R. A., 38 Bulwer Pl., Brooklyn 7, N.Y.
Checchi, V., 221 Main St., Calais, Me.
Chow, H.-M., 521 W. 112th St., New York 25, N.Y.
Christelow, Mrs. D. B., 3300 Gunstan Rd., Alexandria, Va.
Claydon, A., 1700 E. Verona Ave., Pleasantville, N.J.
Clemens, A. H., 7535 Lovella Ave., St. Louis, Mo.
Cochran, G. H., Ohio State University, Commerce Bldg., Columbus 10, Ohio.
Coit, C. G., 23 W. Cedar St., Boston 8, Mass.
Daily, O. F., University of Oklahoma, Faculty Exchange, Norman, Okla.
Dockson, R. R., 803 S. Marengo, Apt. B., Pasadena, Calif.
Dreyhausen, Dr. H. V., Evans Products Co., Foreign Dept., 310 Albee Bldg., Washington 5, D.C.
Edfeldt, T. R., 4115 Wisconsin Ave. N.W., Washington, D.C.
Edmunds, S. W., Northwestern Nat. Life Ins. Co., 430 Oak Grove, Minneapolis 4, Minn.
Erion, G. L., 319 W. Ila, Fayetteville, Ark.
Fain, Miss E., P.O. Box 193, Johnson Hall, 411 W. 116th St., New York 27, N.Y.
Farber, D. J., 21 Elmira St. S.E., Washington 20, D.C.
Filho, J. S. R., Praca 15 de Novembro 10, 5 andar, Departamento Legal, Rio de Janeiro, Brazil, South America.
Filie, F. A., 1701 N. 16th St., Arlington, Va.
Foley, Miss M. J., Dominican College, San Rafael, Calif.
Foster, M. A., 1767 Lanier Pl. N.W., Washington 9, D.C.
Fox, L., 2035 H St. N.W., Washington 6, D.C.
Fulton, W. G., 125 Avon St., Roselle Park, N.J.
Gersting, Dr. J. M., Northwestern University, Dept. of Econ., Harris Hall, Evanston, Ill.
Giffin, R. R., University of Arkansas, College of Bus. Admin., Fayetteville, Ark.
Guyton, P. L., Northwestern University, Harris Hall 306, Evanston, Ill.
Heim, Miss P., Ohio State University, Commerce Bldg., Columbus 10, Ohio.
Hickman, C. A., 312C University Hall, Iowa City, Iowa.
Hoisington, Miss E. C., c/o Nat. City Bank, Statis. Dept., 55 Wall St., New York 15, N.Y.
Howell, P. L., Northwestern University, School of Commerce, Evanston, Ill.
Johnson, R. E., 6033 Baltimore Blvd., Riverdale, Md.
Kalb, J., 115 Central Park W., New York 23, N.Y.
Kalish, S., 816 N. Mariposa Ave., Los Angeles, Calif.

Kampmeier, R. A., TVA, Chattanooga, Tenn.
Kennedy, J. W., 319 E. Trinity Ave., Durham, N.C.
Koch, A. R., 4800 Fairfax Dr., Apt. 3, Arlington, Va.
Kochenderfer, C. C., Kent State University, Kent, Ohio.
Kreps, C. H., Jr., Mount Union College, Dept. of Econ., Alliance, Ohio.
Kreps, Mrs. C. H., Jr., Mount Union College, Dept. of Econ., Alliance, Ohio.
La Macchia, F. R., Sp. (X) 1/C, 2G Plateau Pl., Greenbelt, Md.
Leigh, A. H., Reed College, Div. of History and Soc. Sci., Portland 2, Ore.
Leiter, R. D., 1402 Bristow St., New York 59, N.Y.
Leven, S., 400 E. 58th St., New York, N.Y.
Levine, M., 60 Caryl Ave., Yonkers, N.Y.
Levinson, H. M., University of Michigan, Dept. of Econ., Ann Arbor, Mich.
Lipstein, B., 186 Sullivan Pl., Brooklyn 25, N.Y.
Luck, Miss M. G., University of California, Dept. of Econ., 119 South Hall, Berkeley, Calif.
Lynn, F. L., 39-51 46th St., Long Island City, N.Y.
Marks, M. M., 1968 Iuka Ave., Columbus 1, Ohio.
Melton, R. B., University of Arkansas, Fayetteville, Ark.
Michelsen, J. D., 30 Briston Ave., Saltburn-by-the-Sea, Yorkshire, England.
Miller, S. M., Graduate College, Princeton, N.J.
Moe, F. B., Virginia Junior College, Virginia, Minn.
Molodovsky, N., White, Weld and Co., 40 Wall St., New York 5, N.Y.
Morgan, A. D., 1900 F St. N.W., Washington 3, D.C.
Nichols, J. R., 97 W. Frambes Ave., Columbus 1, Ohio.
Nielsen, Dr. O., 5401 Kellogg Ave., Minneapolis 10, Minn.
Nolan, R. F., 117 Newcomb Rd., Tenafly, N.J.
Nowicki, R. J., 1928 S. 31st St., Milwaukee 4, Wis.
Patinkin, D., 1315 E. 53rd St., Chicago 15, Ill.
Phelps, O. W., University of Chicago, School of Bus., Chicago, Ill.
Picard, F. Q., 234 Garfield Ave., Syracuse, N.Y.
Post, A. A., Utah Foundation, 32 Exchange Pl., Salt Lake City 1, Utah.
Potter, Miss H., Seton Hill College, Greensburg, Pa.
Reubens, E. P., 4507 S. Capitol St., Washington, D.C.
Ricardo, Miss R., 487 Washington St., Brookline, Mass.
Roderick, D. O. M., 826 S. Wabash Ave., Chicago, Ill.
Rosen, H. H., Steel Div., WPB., Washington 25, D.C.
Rosen, Dr. J., P.O.B. 25, Basle 3, Switzerland.
Salant, W. A., 2000 F St. N.W., Apt. 401, Washington, D.C.
Scheinkopf, H. P., 13 E. 16th Ave., Columbus, Ohio.
Schepmoes, D. F, 4444 Wilson Blvd, Arlington, Va.
Schwartz, Miss B., 2222 Eye St. N.W., Washington 7, D.C.
Schweiger, I., 419 Hamilton St. N.W., Washington 11, D.C.
Scoles, D., Univ. of Southern California, College of Commerce, University Park, Los Angeles 7, Calif.
Senturia, J. J., 5410 Macomb St. N.W., Washington 16, D.C.
Stewart, A., 67 Broad St., New York 4, N.Y.
Stine, O. C., U. S. Dept. of Agric., Bur. of Agric. Econ., Washington 25, D.C.
Stone, Dr. J. L., Arkansas A. and M. College, Dept. of Econ. and Soc., Monticello, Ark.
Sur, F. H., Ankara Universitesi, Hukuk Fakültesi, Ankara, Turkey.
Sutton, G. W., Universtiy of Georgia, Veterans' Div., Athens, Ga.
Tepper, L., 1346 Park Rd. N.W., Apt. 208, Washington, D.C.
Thalheimer, Miss R. A., 25 Morris St., Hamden 14, Conn.
Thresher, M. B., British Embassy, Washington 8, D.C.
Warner, Miss F. M., Connecticut College, New London, Conn.
Webbink, Mrs. P., 3319 Tennyson St. N.W., Washington 15, D.C.
Weinstein, A. S., Princeton University, 103 Graduate College, Princeton, N.J.
Whitehead, Dr. F. M., Western Illinois State Teachers College, Macomb, Ill.

Wilder, F. S., 5109 45th St. N.W., Washington 16, D.C.
Willhite, W. L., Catawba College, Salisbury, N.C.
Wintergalen, Rev. E., Regis College, Economics Div., Denver 11, Colo.
Wood, L., 6200 Walhounding Rd., Washington 16, D.C.
Woodward, D. B., 205 W. 54th St., New York, N.Y.
Wright, C. A., Box 34, R.F.D. 5, Alexandria, Va.
Young, D. M., 704 E. 105th St., Chicago 28, Ill.
Zaremba, A. L., 3812 E. 71st St., Cleveland 5, Ohio.

The American Library Association has published a volume, ***Books Published in the United States, 1939-1943: A Selection for Reference Libraries,*** prepared by the Committee on Aid to Libraries in War Areas. It includes a select list on economics and sociology. Though this is considerably less comprehensive than the list prepared for this purpose, this reference was made in a note in the ***American Economic Review*** for March, 1945.

Income from the Permanent Science Fund is disbursed by the American Academy of Arts and Sciences in support of scientific research in the fields of mathematics, physics, chemistry, astronomy, geology, geography, zoölogy, botany, anthropology, psychology, sociology and economics, history and philology, engineering, medicine, surgery, agriculture, manufacture and commerce, education, or any other science of any nature or description. Applications for Grants-in-Aid are receivable on forms which will be supplied upon request to the chairman of the committee, and are considered by the Permanent Science Fund Committee of the Academy on March 1 and October 1. Communications should be addressed to John W. M. Bunker, Chairman, Permanent Science Fund Committee, Massachusetts Institute of Technology, Cambridge, Mass.

The ***Smith College Studies in History*** have completed thirty years of continuous publication. In their entirety, the studies cover a wide range of historical scholarship. Special emphasis has been given to "regional" history and ten volumes have appeared on the social and economic development of the Connecticut Valley. Complete lists of the fifty-five works so far published will be sent upon request by the Smith College Library, Northampton, Mass. Orders for copies or requests for exchange should also be addressed to the Smith College Library.

Appointments and Resignations

Edward D. Allen, associate professor of public finance at Iowa State College, is engaged in a research study for the Iowa Post-war Taxation Study Committee.

Paul H. Anderson is now economic analyst with the War Assets Corporations, Reconstruction Finance Corporation, Washington, D.C., and is also teaching mathematics in the evening school of American University.

C. P. Anson is currently serving as acting associate professor of economics at the University of North Carolina following his resignation as price executive with the Office of Price Administration.

Henry H. Bakken, associate professor of agricultural economics at the University of Wisconsin, resumed his teaching and research duties in January, after having been on leave of absence during the past two and a half years in government service.

Claude D. Baldwin has joined the staff at Indiana University as assistant professor of economics.

Robert B. Bangs has resigned as assistant professor at Indiana University and accepted a position with the Department of Commerce in Washington, D.C.

Russell S. Bauder who has been on leave, serving as vice chairman of the National War Labor Board, Region VII, Kansas City, Missouri, has resumed his duties as professor of economics at the University of Missouri.

Eric Beecroft was appointed special assistant to the Secretary of the Interior following his return from India where he served as special representative of the Foreign Economic Administration and special agent of the United States Commercial Company.

Lawrence Bell has been appointed a teaching fellow in the department of economics at Harvard University for the spring term.

Rollin F. Bennett has resumed his teaching in the School of Business of Columbia University after three years' absence while engaged in war work.

George E. Bigge of the Social Security Board and a lecturer in social security problems at the Graduate School of Social Science, the Catholic University of America, is now attached to the American Military Government in Germany.

Jay W. Blum of the department of economics of Kenyon College served as a lecturer in economics at the Ohio State University during the winter quarter of 1946.

Francis M. Boddy, associate professor of economics at the University of Minnesota, has returned from active duty in the United States Naval Reserve and has resumed his regular post.

Brandt Bonner, formerly of Furman University, has been appointed associate professor of economics at the University of Florida.

Daniel Borth has resigned as professor of accounting and auditor of Louisiana State University.

Samuel E. Braden has resumed his duties as assistant professor at Indiana University after serving for some time with the Statistical Control Division of the Army Air Forces.

Paul A. Brinker has been appointed an instructor in the department of economics at the University of Vermont.

D. H. Buchanan, who has been on leave with the Department of State, has returned to his duties as professor of economics at the University of North Carolina.

Eveline M. Burns has been appointed part-time lecturer in social economy for the second semester at Bryn Mawr College and will give a graduate seminar in social research.

James D. Calderwood has returned to his work as an instructor in economics at the Ohio State University after service in the Army.

C. E. Calhoun, formerly of the faculty of the University of Toledo, has been appointed professor of finance in the College of Business and Public Administration of the University of Maryland.

Wesley G. Campbell has been appointed a teaching fellow in the department of economics at Harvard University for the spring term.

William A. Carter was appointed chairman of the department of economics at Dartmouth College in July.

James E. Chace has been appointed acting head professor in charge of real estate courses at the University of Florida.

Frank E. Childs, instructor in economics at the University of Minnesota, has returned to his teaching duties following three years of service in the United States Naval Reserve.

C. Wilbur Cissel has returned to the faculty of the College of Business and Public Administration, University of Maryland, as associate professor of accounting following his release from the Navy with the rank of Lieutenant Commander.

Arthur Claydon, formerly acting head of the department and professor of economics at Earlham College, is at present teaching economics at Syracuse University.

Thomas J. Clifford, recently returned after service with the Armed Forces, has been appointed instructor in accounting in the School of Commerce, University of North Dakota.

Richard M. Colwell has resumed his duties as instructor in economics at the Massachusetts State College, after three years' service as a Captain in the Army.

Arthur G. Coons, professor of economics and dean of Occidental College, has been elected president of the college and will take office at the end of the present academic year.

C. Sidney Cottle, formerly a Commander in the United States Naval Reserve, has been appointed associate professor of business administration at Emory University.

Lawrence A. Cusack, formerly of Creighton University, is now teaching in the Graduate School of Social Science of the Catholic University of America.

Ralph Currier Davis has resumed his work as professor of management at the Ohio State University after serving in the Army for three years as a Lieutenant Colonel in the materials control division of the Air Corps.

Lawrence S. Dreiman has recently been discharged from the Army and is now an instructor in economics at the University of Minnesota.

John F. Due has returned to his duties at the School of Business, University of Utah, after three years' service as an officer in the Marine Corps.

William M. Duffus has returned to his position as professor of finance and transportation at the Ohio State University after some years of service with the United States Tariff Commission in Washington.

W. J. Eiteman, associate professor of economics at Duke University, who has been on leave of absence teaching in the Army University in France, will resume his duties in March.

Boris Emmet, formerly vice president of Sears, Roebuck and Company and professor of economics at Stanford University, has been appointed research associate in the School of Business of the University of Chicago to conduct a study of the history of Sears, Roebuck and Company under a grant from the Rockefeller Foundation.

A. Ross Evans, formerly with Haskins and Sells and civilian accountant attached to the United States Navy, has been appointed associate professor of accounting at the University of Florida.

Elden Facer of the School of Business at the University of Utah is at present on leave of absence.

Mildred Fairchild, director of the Carola Woerishoffer graduate department of social economy at Bryn Mawr College, has resigned to join the International Labor Office, Montreal, where she is working with the section on women's work and the protection of youth.

John T. Farley, formerly economist with the War Production Board and the Office of Price Administration and instructor in economics and finance at Duquesne University, has accepted a position in the market research division of the General Electric Company, Schenectady.

Ivan Farmer is now instructor in accounting at the University of Kansas.

George Filipetti, professor of business administration at the University of Minnesota, has returned to his regular post following six months' service at the Biarritz Army University Center.

Ernest M. Fisher has resigned his position with the American Bankers Association to become professor of urban land economics in the School of Business of Columbia University.

J. Wesley Fly, formerly associate professor of accounting at the University of Florida, has resigned and is now associated with Pribble and Wells in Orlando.

Robert W. French has resigned as associate professor of business administration and assistant director of the Bureau of Business Research at Louisiana State University.

Joseph H. Furth, an economic adviser to the Board of Governors of the Federal Reserve System, is offering courses in mathematical economics and advanced economic theory in the Graduate School of Social Science of the Catholic University of America.

Domenico Gagliardo has resumed his position as professor of economics at the University of Kansas after serving as a Major in the Quartermaster Corps of the Army.

Eli Ginzberg, who has served as a special assistant to the Surgeon General, will resume his teaching in the School of Business of Columbia University this spring.

John H. Goff, formerly professor of economics at Alabama Polytechnic Institute, has been appointed professor of business administration at the School of Business Administration of Emory University.

R. A. Gordon, associate professor of economics, returned to the University of California for the fall term, having been on leave of absence from January, 1942, to serve as American coördinator of research on the Combined Raw Materials Board, Washington.

A. C. Griffin was appointed lecturer in economics at the University of North Carolina following his resignation from the staff of the Atlanta Regional Labor Board.

E. T. Halaas, formerly of the Bureau of Research, University of Denver, has been appointed director of the Bureau of Business Research, College of Business and Public Administration, University of Maryland, after service with the War Production Board and in the Navy as a Commander.

William Haller, Jr., who served with the Navy as a Lieutenant (j.g.) for the past two years, has been appointed assistant professor of economics at the Massachusetts State College.

John N. Hart, who has recently served in the Navy, has resigned his position in the department of economics at the Ohio State University to become an economist with the Goodrich Rubber Company.

Henry C. Hawley, formerly chairman of the department of business administration at Hobart College and visiting lecturer in economics at the Harvard University Graduate School of Business Administration, has resigned to accept a position as professor of business administration at the University of Maine.

Samuel P. Hayes has become assistant director of marketing research for Dun and Bradstreet, Inc., after serving during the war with the Mission for Economic Affairs in London and as special representative of the Foreign Economic Administration in Norway and Denmark.

Harold M. Heckman, professor of accounting, returned to the College of Business Administration, University of Georgia, in January, after serving as assistant treasurer and chief accountant of the St. Johns Shipbuilding Company, Jacksonville.

Clarence Heer, professor of economics at the University of North Carolina, has been promoted to Kenan professor of economics.

Earle Hicks, formerly with the Treasury Department, has been appointed associate professor of business administration in the School of Business Administration of Emory University.

Clifford G. Hildreth has returned from service with the Armed Forces to take up his former position as instructor in agricultural economics at Iowa State College.

George N. Hobart is now professor of business administration at High Point College.

Sidney Hoos, formerly deputy chief, requirements branch of the Office of the Quartermaster General, Washington, has been appointed associate professor of agricultural economics at the University of California, Berkeley, and will continue with the War Department as consultant in requirements.

Paul L. Howell has recently been appointed assistant professor of finance, in the School of Commerce of Northwestern University following his release after three and a half years of service in the Naval Reserve with the rank of Lieutenant Commander.

Emily H. Huntington, professor of economics at the University of California, will resume teaching in the spring term, having been on leave of absence since February, 1943, serving with the Tenth Regional War Labor Board in San Francisco as Wage Stabilization Director.

Elmo Jackson has been appointed instructor in the department of economics at Harvard University for the spring term.

Roy W. Jastrum has returned to Stanford University as instructor in economics after an absence of three years during which he served as operations analyst with the Army Air Forces in the Aleutians and later in the Headquarters, Commander in Chief of the U. S. Fleet, where he was director of the Air Operations Research Group.

Keith W. Johnson, formerly with the Combined Raw Materials Board, is now an economist with the Construction Division, Bureau of Foreign and Domestic Commerce, Washington.

William H. Joubert, associate professor of economics at the University of Florida, has returned after working on the St. Lawrence Waterways project as economic analyst for the Department of Commerce.

Donald R. Kaldor has been appointed to the position of assistant professor in the department of economics and sociology at Iowa State College.

C. A. Kirkpatrick, who served as a Lieutenant in the Marine Corps, has returned to the faculty of the College of Business and Public Administration, University of Maryland, as assistant professor of marketing.

William E. Koenker, recently returned from service with the Armed Forces, has been appointed instructor in finance in the School of Commerce, University of North Dakota.

Simon S. Kuznets, professor of economic and social statistics in the Wharton School of Finance and Commerce of the University of Pennsylvania, has been named economic adviser to the National Resources Commission of China. Dr. Kuznets will spend four months in China, leaving June 1.

J. H. Landman of the accounting firm of Seidman and Seidman has become associated with the National Industrial Conference Board as tax specialist.

J. M. Lear has been promoted from associate professor to professor of economics at the University of North Carolina.

Wilfred C. Leland has rejoined the staff of the department of economics at the University of Minnesota as an instructor after a period of government service in Washington.

William S. Lennon has been appointed instructor of economics at West Virginia University.

W. N. Leonard has resigned his position as transportation officer of the Office of Civilian Requirements, War Production Board, and is now assistant coördinator of planning for TWA in Kansas City.

Richard W. Lindholm, formerly of the staffs of the departments of economics of the Universities of Minnesota and Texas, has accepted an appointment in the department of economics at the Ohio State University.

Francis A. Linville, assistant professor of economics at Dartmouth College on leave of absence during the war years, has resigned his position to continue his work in the Department of State.

Clarence D. Long, Jr., has been appointed associate professor of political economy at the Johns Hopkins University after service as a Lieutenant in the Naval Reserve.

J. R. Mahoney, director of the Bureau of Business and Economic Research of the University of Utah, has returned after an eight-month stay in Washington as consultant on the Surplus Property Board.

Arthur A. Mandelbaum is serving as acting assistant professor of economics at Stanford University and is offering courses in economic history.

Arthur Mauch, formerly with the land economics section of the Bureau of Agricultural Economics, has been appointed an extension associate professor in the field of agricultural economics at Michigan State College.

J. M. McDaniel, professor of economics at Dartmouth College, has extended his leave of absence in order to continue his work with the Reconstruction Finance Corporation.

F. Eugene Melder, on leave with the Regional War Labor Board in Detroit during the past two years, has resumed his duties as associate professor of economics and sociology at Clark University.

Allen Meyer, after serving as a Captain in the Army, has returned to the Ohio State University where he has been promoted to the rank of assistant professor of business organization and placement director of the College of Commerce.

Glenn Miller, who has been serving as a Captain in the Marine Corps, has returned to his work as assistant professor in the department of economics at the Ohio State University.

John Perry Miller has been promoted to associate professor of economics at Yale University.

J. D. Morgan, formerly of the University of Illinois, has been appointed assistant professor of economics at the University of Kansas.

William F. Moshier has been appointed assistant professor of accounting at the University of Florida.

Sanford A. Mosk, assistant professor of economics at the University of California, was granted leave of absence to teach Latin American economics in the Miltary Attaché Program at the University of Michigan, with the title of visiting associate professor in economics.

George N. Motte, formerly a Captain in the Army Quartermaster Corps in Washington, has returned to his position as assistant professor of economics at Michigan State College.

Frank Munk, formerly director of training of the United Nations Relief and Rehabilitation Administration, has been appointed chief economic adviser to the UNRRA mission in Czechoslovakia.

Alfred C. Neal, who has been on leave of absence to serve in the Office of Price Administration, has resigned his position as assistant professor of economics at Brown University and will become director of research at the Federal Reserve Bank of Boston.

John A. Nordin has returned after service with the Armed Forces and taken up his position as assistant professor of economics at Iowa State College.

Howard M. Norton has returned to his position as head of the secretarial science department at Louisiana State University after a leave of absence during which he taught at the American University in Shrivenham, England.

H. M. Oliver is now serving as acting associate professor of economics at the University of North Carolina.

John E. Orchard, who has been on leave in government service since 1941, has resumed his teaching in the School of Business of Columbia University.

Jacob Perlman of the Social Security Board is offering a course in labor market analysis in the Graduate School of Social Science of the Catholic University of America.

Kenyon E. Poole, who is returning to Brown University after service in the Navy, has been promoted to associate professor of economics.

Earl P. Powers has been promoted to associate professor of accounting at the University of Florida following his return after service with the Army.

J. H. Reid, who served as acting dean of men during the war period, has resumed his position as associate professor of marketing in the College of Business and Public Administration of the University of Maryland.

Rita Ricardo has been appointed a teaching fellow in the department of economics at Radcliffe College.

Ross Robertson, who has been a Lieutenant in the Navy's Bureau of Supply and Accounts, has returned to the University of Kansas as instructor in economics.

Arthur M. Ross, previously vice chairman of the War Shipping Panel of the National War Labor Board in Washington, has been appointed lecturer in economics at Michigan State College.

Richard Ruggles has been appointed instructor in the department of economics at Harvard University for the spring term.

Laurence de Rycke has been promoted to assistant professor of economics at Occidental College.

Alfred L. Seelye, who has been price economist with the Office of Price Administration regional office at Dallas, Texas, has rejoined the faculty of the University of Kansas as assistant professor of marketing.

Robert T. Segrest, associate professor of economics and assistant Dean of the College of Business Administration, University of Georgia, returned in January after serving as Wage Stabilization Director and later as vice chairman of the Fourth Regional War Labor Board in Atlanta. He is now part-time public member of the Regional Wage Stabilization Board in Atlanta.

Clarence Senior, formerly chief foreign economic specialist in the Bureau of Areas of the Foreign Economic Administration, has been appointed visiting professor of social science

and acting director of the Social Science Research Center at the University of Puerto Rico. In addition, he will make a study of the land distribution program.

William H. Shannon, who recently served as a Commander in the Bureau of Supply and Accounts of the Navy, has resumed his position as associate professor of accounting at the University of Kansas.

Edward S. Shaw has returned to Stanford University as professor of economics after a leave of absence of three years, serving with the Office of Price Administration and later as a Supply Officer in the Navy.

James H. Shoemaker, who has been on leave of absence from Brown University to serve with the Military Government Division of the Army, has resigned his position as assistant professor of economics to become professor of economics at the University of Hawaii.

Joe Small has been appointed instructor in accounting at the University of Kansas.

Hampton K. Snell has, since May, 1945, been on leave of absence as one of the assistant directors of research for the Industrial College of the Armed Forces to serve as assistant to the vice president of research of the Association of American Railroads.

Henry W. Spiegel of the Graduate School of Social Science of the Catholic University of America, has been granted a leave of absence during the second semester to engage in research work in Brazil, following his receiving a fellowship awarded by the Guggenheim Memorial Foundation.

J. Y. Springer, assistant professor of economics at Duke University who has been on leave of absence serving as a Lieutenant Commander in the Navy, resumed his teaching duties in March.

William A. Spurr, formerly of the University of Nebraska, has been appointed associate professor of statistics in the School of Business of the University of Chicago.

R. L. Stallings has been released from the Navy and has returned to the University of North Carolina as instructor in accounting.

Harry Sundwall of the School of Business at the University of Utah is at present on leave of absence.

Victor P. Tabaka, formerly personnel manager of Bell Aircraft Corporation's Georgia Division, has been appointed associate professor of business administration at Emory University.

Lorie Tarshis has been appointed assistant professor in the department of economics at Tufts College for the year 1945-46.

James Tobin has been appointed a teaching fellow in the department of economics at Harvard University for the spring term.

John V. Van Sickle, professor of economics at Vanderbilt University, has been appointed research professor of economics in the University's Institute of Research and Training in the Social Sciences.

Dilworth Walker of the School of Business of the University of Utah is on partial leave of absence while acting as consultant and director of research of the Utah State Legislature's Tax Study Committee.

Charles J. Walsh has resumed his teaching duties as assistant professor of economics at the Graduate School of Arts and Sciences, Fordham University, after serving for eighteen months as head of the Office of Export-Import in the Office of Price Administration.

William C. Welden, formerly with the Department of Agriculture, is now associated with H. P. Hood and Sons, Boston, as economist.

Samuel G. Wennberg, who has been serving in the Office of the Director of the Economics Division, Office of Military Government for Germany, has returned to the University of Missouri and has resumed his teaching duties as associate professor of marketing.

John T. Wheeler is now an instructor in accounting and economics at the University of Minnesota following his discharge from the Army.

J. Brooke Willis has resumed his teaching in the School of Business of Columbia University after service in the Army.

Edwin E. Witte of the department of economics at the University of Wisconsin is resuming his teaching this semester after a three-year leave of absence spent as Regional Director of the War Labor Board in Detroit and as a public member of the National War Labor Board in Washington.

Herman J. Wyngarden, professor of economics and recently appointed head of the department of economics at Michigan State College, served for the past two and a half years as a public member of the Regional War Labor Board in Detroit.

Hugh Edwin Young, instructor in economics at the University of Maine, is on leave of absence during the year 1945-46.

VACANCIES AND APPLICATIONS

The Association is glad to render service to applicants who wish to make known their availability for positions in the field of economics and to administrative officers of colleges and universities and to others who are seeking to fill vacancies.

The officers of the Association take no responsibility for making a selection among the applicants or following up the results. The Secretary's Office will merely afford a central point for clearing inquiries; and the *Review* will publish in this section brief descriptions of vacancies announced and of applications made. It is optional with those submitting such announcements to publish name and address or to use a key number.

Communications should be addressed to: The Secretary, American Economic Association, Northwestern University, Evanston, Illinois.

Vacancies

The Department of Economics in an old, well-established state university will accept communications now from economists in the Armed Services or in emergency government agencies who might qualify for future staff positions. There are at present no vacancies but anticipated postwar expansion is expected to justify additions to staff over and above the return of senior members now on leave of absence. All applications will be carefully reviewed, acknowledged, and classified in an active file for future reference. P107

Business law: Wanted, two attorneys with graduate training in economics or business organization for assistant professorships. Midwest college of commerce. P108

Air transportation: Wanted, man with air transportation experience and graduate work needed by Midwest college of commerce. P109

Business correspondence: Wanted, man with graduate degree needed for full-time position, Midwest college of commerce. P110

Economic theory and its history: Wanted, by a large, well-established eastern university, an experienced teacher with Ph.D. degree. P111

Labor relations: Opening for fall semester, midwestern state university, September, 1946. Associate professor, Ph.D. Salary $3,500 for nine month with possibility of employment during the summer at additional salary. Man under 40 preferred. P112

Teachers Available

International economic relations, comparative economic system, government and business, national defense and war, research: Man, 41, married, European Ph.D. degree, American citizen. Wide experience in academic teaching and research; many publications. Now employed at Eastern college; desires position with greater opportunities. Available in May, 1946. E108

Labor economics, industrial management: Man, 44, Ph.D., 1931, University of Wisconsin. University teaching experience; research and general experience in business and government agencies. Lecturer in the evening session of a large college and director of education in a commercial organization; on leave to teach in Army University Studies Center, England. Available, February, 1946. E116

Money and banking, business cycles, international trade and finance, corporation finance, economic theory, statistics: Man, 43, married, Ph.D., Harvard. Seventeen years of experience teaching economics in American colleges; also experience in banking and government service; publications; employed as head of department in small college but desires position with greater academic opportunities. Available in July, 1946. E133

Economic and monetary theory, economics and philosophy, government and economics: Man, 35, Ph.D. Two years of study abroad; teaching experience. E153

Money and banking, corporation finance, investments, economic history: Man, Ph.D., Columbia University. Twenty years of banking experience; wishes teaching position. War veteran. Available for summer or fall term. E162

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